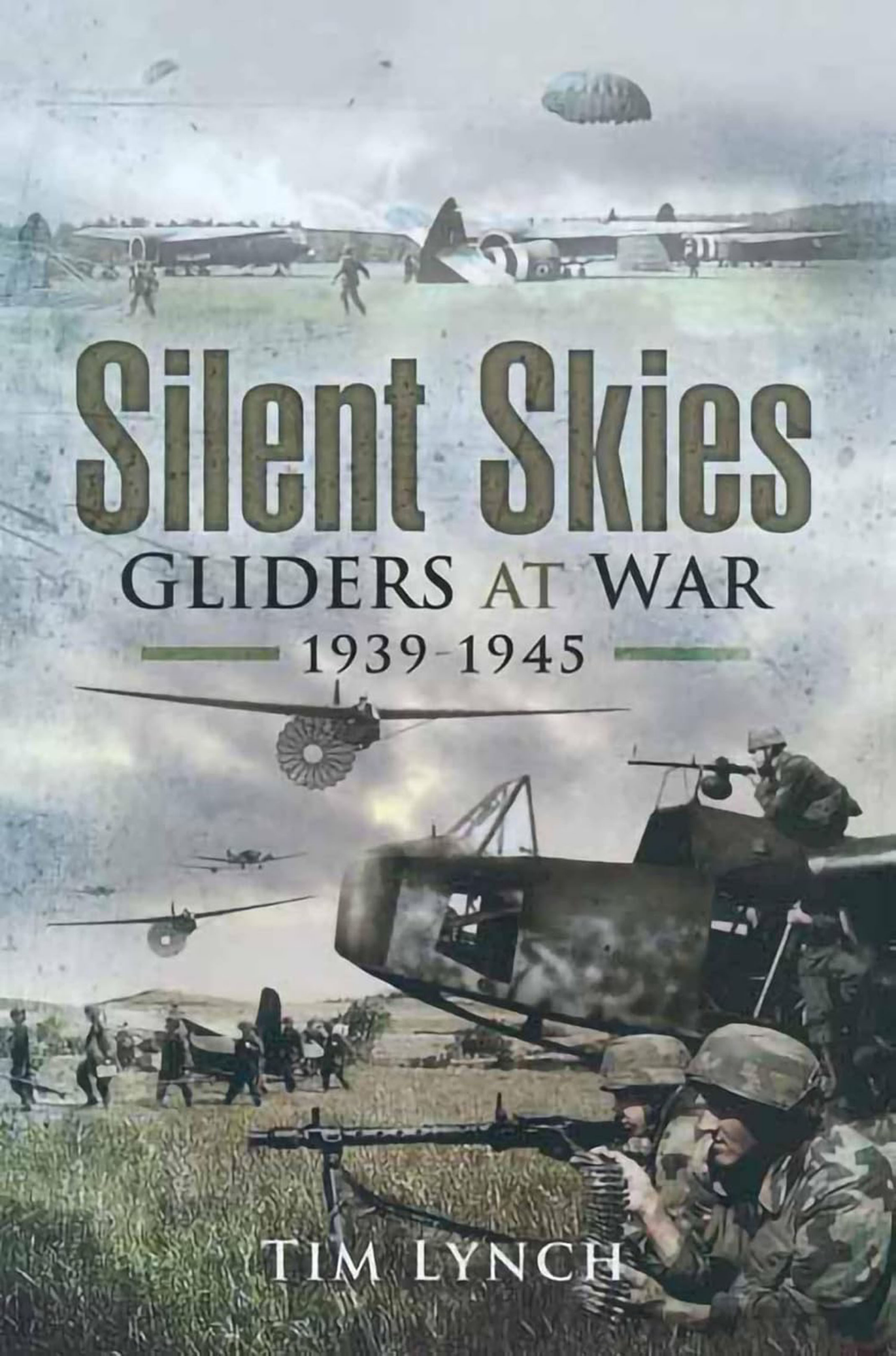
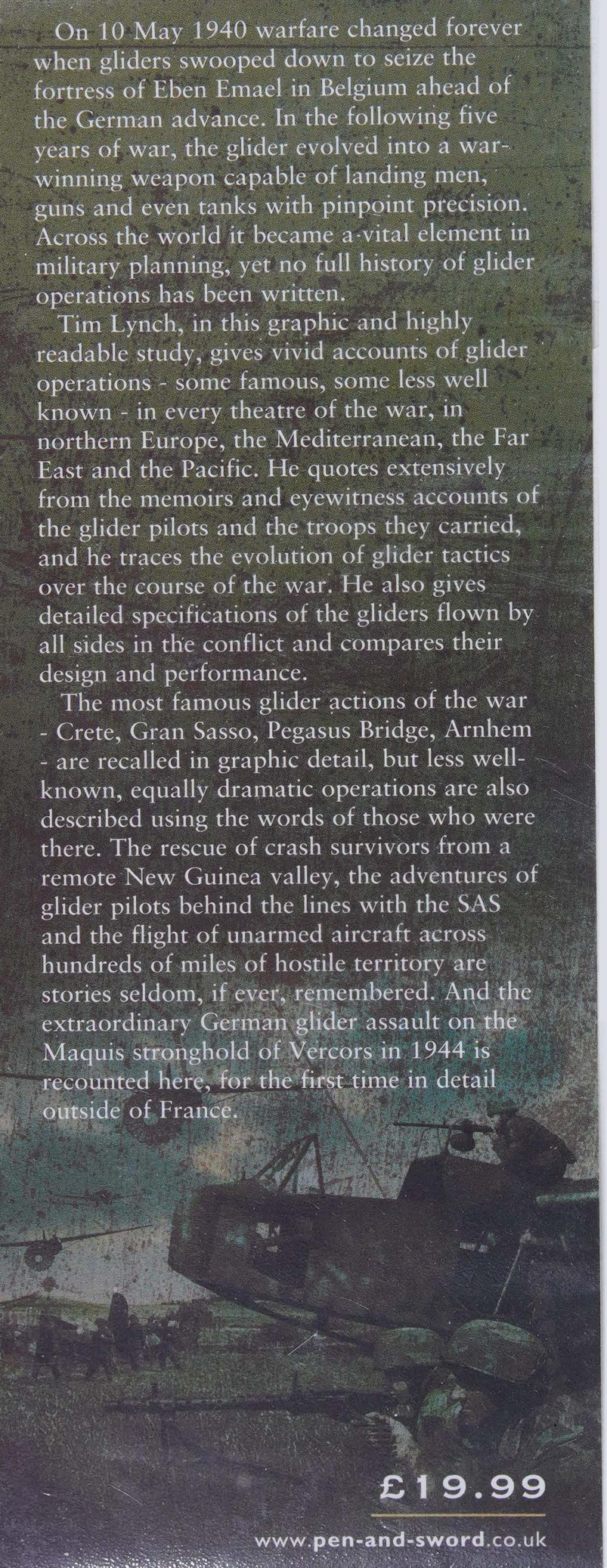

Silent Skies
GLIDERS AT WAR
1939-1945
TIM LYNCH

On 10 May 1940 warfare changed forever when gliders swooped down to seize the fortress of Eben Emael in Belgium ahead of the German advance. In the following five years of war, the glider evolved into a war-winning weapon capable of landing men, guns and even tanks with pinpoint precision. Across the world it became a vital element in military planning, yet no full history of glider operations has been written.

Tim Lynch, in this graphic and highly readable study, gives vivid accounts of glider operations - some famous, some less well known - in every theatre of the war, in northern Europe, the Mediterranean, the Far East and the Pacific. He quotes extensively from the memoirs and eyewitness accounts of the glider pilots and the troops they carried, and he traces the evolution of glider tactics over the course of the war. He also gives detailed specifications of the gliders flown by all sides in the conflict and compares their design and performance.

The most famous glider actions of the war - Crete, Gran Sasso, Pegasus Bridge, Arnhem - are recalled in graphic detail, but less well-known, equally dramatic operations are also described using the words of those who were there. The rescue of crash survivors from a remote New Guinea valley, the adventures of glider pilots behind the lines with the SAS and the flight of unarmed aircraft across hundreds of miles of hostile territory are stories seldom, if ever, remembered. And the extraordinary German glider assault on the Maquis stronghold of Vercors in 1944 is recounted here, for the first time in detail outside of France.



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Tim Lynch

Pen & Sword
MILITARY

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Acknowledgements

The story of the glider war is drawn from a number of sources, mainly from the stories left behind by the men of both sides who flew to war in circumstances the rest of us can only try to imagine. I hope this book does justice to their courage.

My thanks go to David Brook of the Glider Pilot Regimental Association for his polite and speedy responses to my requests for help. Anyone interested in British glider operations would do well to subscribe to the association's journal *The Eagle* for its fascinating accounts and profiles of the pilots themselves (c/o David Brook, Birds Hill, Great Bealings, Woodbridge, Suffolk, IP13 6NR). Ray Cunningham and the staff of the Assault Glider Trust were generous in allowing me to visit their project and sparking my interest in the Horsa. Thanks, too, to Joe Larkin for permission to use the photograph taken by his father, Philip M Larkin, Sgt/Photographer 30th Photographic Reconnaissance Squadron, United States Army 9th Air Force, on 7 June 1944. Thanks also to Denis Edwards, one of the first to land at Pegasus Bridge, for his generosity in allowing me to quote from his description of the landing. Further help came from Martin Mace who supplied some of the photos used. At Pen & Sword, Rupert Harding championed the idea for the book and has been a source of encouragement throughout.

Several personal accounts proved invaluable in gaining an insight into the life of a glider pilot. Ronald Seth's *The Lion with Blue Wings* (Panther 1959) is a highly readable account of the GPR whilst John L. Lowden's *Silent Wings at War* (Smithsonian 1992) describes the American point of view. Gerard Devlin's *Silent Wings* (St Martin's Press 1985) tells the story of glider warfare from a primarily US perspective and Alan Wood's *History of the World's Glider Forces* (Patrick Stephens 1990) is just that, a wide-ranging account of the aircraft and operations of all nations. Kevin Shannon and Stephen Wright's *One Night in June* (Airlife 1994) is a must for anyone interested in the 6th Airborne's landing in Normandy. The Allied effort is well documented but I owe a huge debt to Georg Schlaug, whose *Die deutschen Lastensegler Verbände 1937–1945* (Motorbuch Verlag Stuttgart 1985) is the only account available of German glider operations.

Finally, my wife Jacqueline and children Bethany and Josh are all owed thanks for accepting that there comes a point in a man's life when he feels the need to lock himself away and look at pictures of things. It could have been worse guys!

The photographs in this book are taken from a variety of sources. Where possible, they are accredited but some are taken from contemporary publications where the source is either unaccredited or has been impossible to trace. No breach of copyright is intended and anyone affected is invited to contact the author.

Abbreviations

AAC	Army Air Corps, formed in 1941, comprising the Parachute Regiment, the Glider Pilot Regiment and attached arms. Technically it also covered the Special Air Service although they remained independent. In 1957, the modern AAC was formed by the amalgamation of the Glider Pilot Regiment with the Air Observation Post Squadrons who acted as spotter planes for the artillery.
CG	Cargo glider. The US Air Force categorizes all aircraft by function and gives a number to each design. The most widely used glider was the CG-4, also known as the Waco after its designers but often built by other aircraft companies.
CLE	Central Landing Establishment: the British airborne training centre at Manchester's Ringway airfield (now Manchester Airport). Once confused with the Central Laundry Establishment!
DFS	Deutsche Forschungsanhalt für Segelflug. The German sail plane research centre, a subsidiary of the Rohen Research Institute originally developing flying observatories for meteorological experiments. The design became the basis of the widely used DFS 230 glider.
DZ	Drop zone: an area designated for the landing of parachute troops and supplies.
FO	Flight officer: US rank for glider pilots. Commissioned by warrant, they were sometimes referred to as Third Lieutenants – somewhere between enlisted ranks and 'real' officers but enjoying the perks of both.
GAL	General Aircraft Ltd, builders of the British Hotspur and Hamilcar gliders.
GO	Gotha 242 glider (German).
GPR	Glider Pilot Regiment (British).
LLG	Luftlande Gruppe: German equivalent of an air landing unit.
LS	*Lastensegler*: German term for a glider.

LZ	Landing zone: an area designated for the landing of aircraft including gliders.
RAF	Royal Air Force. Although glider pilots were, for the most part, army personnel, their training was carried out by the RAF, who supplied the tug aircraft to tow the gliders to their destination.
RV	Rendezvous: the meeting point for troops after landing.
SDP	Supply Dropping Point.
TCC	Troop Carrier Command: the US Air Force units tasked with the delivery of airborne troops and supplies.

Introduction

For thousands of years, men dreamed of flight and the power it would bring. Legends of flying warriors bringing death from the skies inspired attempts by the learned, the brave and the foolish to leap from high places in the hopes of finding the secret of flight, knowing that, as Friar Joseph Galien (1699–1762) had speculated, once controlled flight had been achieved it should be possible 'to transport a whole army and all their munitions of war from place to place as desired'. In 1784, shortly after witnessing the ascent of the Charles hydrogen balloon in Paris, Benjamin Franklin wrote that

> five thousand balloons, capable of raising two men each, could not cost more than five ships of the line; and where is the prince who can afford so to cover his country with troops for its defence, as that ten thousand men descending from the clouds might not in many places do an infinite deal of mischief before a force could be brought together to repel them?[1]

Throughout the Napoleonic wars fanciful engravings of French troops descending from the heavens by balloon as others tunnelled under the Channel appeared in British newspapers and propaganda pamphlets but balloons, so dependent on wind direction, remained too unreliable to use as a weapon of war.

It would not be until the mid-nineteenth century when Sir George Cayley sent his coachman by glider across a valley near his Yorkshire home that the dream appeared to be finally within reach. The race now was on to attain the next step – powered flight. Fifty years later, Orville and Wilbur Wright, using a design inspired by Cayley's glider, finally crawled into the sky. Within a single lifetime, men would reach the moon.

In the race to find the secret of powered flight, the glider was all but forgotten but in April 1905, shortly after the Wright brothers made their famous flight, the *Santa Clara*, a tandem winged glider made a high altitude flight watched by over 15,000 people in Santa Clara, California. Designed by Professor John Montgomery of the nearby Jesuit College and piloted by a circus acrobat, Daniel Maloney, the *Santa Clara* was lifted to a height of 4,000 feet by a hot air balloon and released. Maloney took the glider through a series of gentle turns before making a perfect landing less than a mile from the launch site. Four more aircraft were built and taken to shows around California until, on 18 July 1905, a tail brace broke as the glider left the balloon and Maloney plunged to his death just feet from the horrified spectators. Six years later, Montgomery himself would die in

a fall of just twenty feet. Yet despite these deaths and the attention given to powered flight, glider manufacturers sprang up across America and by 1910 enthusiasts were experimenting with launching themselves by being towed behind cars.

In the aftermath of the First World War, gliding again began to gain popularity as a sport and aircraft design and flying techniques developed rapidly. German flyers, frustrated by the limitations of the catapult launches available to them, had introduced the concept of towing gliders behind a powered aircraft to gain much greater height and longer flights. The system was introduced to Britain by the unlikeliest of aviation pioneers, romantic novelist Barbara Cartland. Together with two RAF officer friends, Cartland undertook experiments with a 200-mile tow of an aircraft named in her honour and proposed the setting up of an airmail service by glider.[2] Across the world, the ease with which a glider could be towed by a light aircraft made it possible for cargo, especially mail, to be 'snatched' off the ground by lifting its tow rope between two poles where a hook on a low flying powered plane could catch it and raise the glider without ever having to land, making it possible for gliders to operate out of very small airfields. Other experiments showed that several gliders could be towed at one time in what would become known as 'skytrains' and some of these operated in Central Europe for several years. Despite these experiments, though, few countries felt the need to develop cargo gliders for more general use. They may be a nice gimmick, but for the most part, what could they accomplish that ordinary aircraft could not?

The answer came on 10 May 1940, when German DFS 230 gliders delivered an attacking force inside the perimeter of Belgium's Fort Eben-Emael in a stunning coup de main. Within a year, British and American glider projects would be racing to catch up. Within five years, gliders would be the most numerous aircraft of the Second World War. Within ten years the concept would be obsolete.

In those ten years, tens of thousands of gliders would be developed across the world – nearly ninety different types produced in sixteen countries. Around 14,000 of a single type, the US CG-4A Waco (known to the British as the 'Hadrian'), would make it the most widely used aircraft of the war. Their use would range from assault gliders delivering troops to specific targets to the development of the armed Blohm and Voss BV40 Fighter Glider, designed to be towed by a powered fighter and then released to dive onto Allied bomber formations, twin 30 mm cannons blazing. Transport gliders would carry tanks and troops into battle in aircraft so large that it would not be for another thirty years that the Boeing 747 Jumbo Jet would match their wingspan, whilst at the other extreme, the tale of Daedalus and his escape would inspire the building of a glider by prisoners under the very noses of guards at the notorious Colditz Castle.

What follows is the story of the glider years.

Chapter One

The fourth flank

Even as gliding as a sport was becoming an established pastime in the early years of the twentieth century, war clouds were gathering over Europe and attention turned to developing faster, stronger and more powerful aircraft and new uses for them. During the First World War, the use of airborne operations became possible and small teams of special agents jumped by parachute or were landed behind enemy lines on all fronts – the Italians being especially active – but no large-scale actions could yet be undertaken from the aircraft available. Aerial resupply had been used as early as March 1916 to drop supplies to British troops besieged at Kut-el-Amara in Mesopotamia and more than 7 tons were eventually delivered this way. Italian aircraft were especially successful in dropping ammunition to its advancing troops in October 1918 and imaginative leaders began to explore ways in which this new mobility could be exploited. At one point Winston Churchill proposed dropping troops behind enemy lines to destroy key bridges but the plan was shelved, although similar French teams did operate in the Ardennes.

By September 1918, US General William 'Billy' Mitchell commanded a joint Franco-American force of almost 1,500 aircraft and frequently used 200 or more aircraft at a time for the mass bombing of enemy targets, sharing his British counterpart Major-General Hugh Trenchard's view that air power was a vital element of land warfare. As the US First Army fought its way slowly through the Argonne Valley, losing 117,000 men in an advance of less than thirty-two miles, a young officer named Lewis H Brereton proposed an audacious scheme to drop the US 1st Division by parachute from a force of Handley-Page 0/400 bombers to capture the fortified city of Metz. This, he believed, would allow them to leapfrog the fierce German resistance, capture a major defensive position and cut off rail supply to the Germans through the important rail junction in the city. Suitable parachutes were available, having been developed first as a fairground stunt but now adapted for use by the crews of observation balloons who were, quite literally, sitting targets for fighter planes. Although the British Air Board had refused their use by combat pilots, arguing that the provision of an escape mechanism 'invited cowardice in action' (an attitude that would cost around 6,000 lives before the order was overturned in September 1918), no barriers to their use by infantrymen could be found. Mitchell championed the idea but it was halted by the American Expeditionary Force's commander,

General 'Black Jack' Pershing. It would be almost exactly twenty-six years before Brereton saw his plan in action – as commander of the First Allied Airborne Army during Operation Market-Garden in September 1944 and in the years after the war, 'Billy' Mitchell's maverick ideas about the use of air power and 'vertical envelopment' by parachute troops would lead to his eventual court-martial and resignation from the army. He died in 1935 but was posthumously reinstated as a general in the United States Army in 1946 after many of his theories had been proved effective in action.[1]

After the First World War, neither Britain nor America saw any real use for parachute troops but set up training centres purely for the use of air crews. Britain made a few tentative steps towards developing air landing forces by taking delivery of the new twin-engined Vickers Vernon troop carrier in 1922 and using it to rapidly move troops into Iraq to capture dissident tribesmen. Ten years later, infantrymen of the 1st Northamptons were again airlifted into Iraq to quell another anti-British revolt. The American military considered parachuting to be little more than an entertaining stunt but airlifted US Marines into Central and South America for small-scale policing missions. Some experiments were conducted in the use of parachutes for infantry use but, to use Andre Beaufre's memorable phrase, the allies 'suffered from victory'. Defence spending was low and public opinion strongly anti-military as nations struggled to cope with the massive losses incurred by 1918. Year upon year defence spending was cut to the point that, by 1940, General Bernard Montgomery, then a divisional commander of the British Expeditionary Force in France, complained that some units were unfit to take part in even a realistic exercise, let alone a real war. Sending them into combat, he claimed 'would be sheer massacre'. Faced with financial constraints that prevented even large-scale exercises in the late 1930s, the development of new aggressive units took a very low priority.

Elsewhere, though, other armies took a different approach. The Italians, having gained enormously from their use of special teams operating behind Austrian lines, began experiments with parachute troops near Milan in 1927 and opened a second school near Tripoli in 1938 for Italian officers and colonial volunteers. Russia, too, had made good use of airdropped agents during the First World War and by the 1930s parachuting had become a national sport. A 1931 drop of fifteen paratroopers in an operation against bandits at Basmach in Central Asia had demonstrated the potential of such forces and by 1932 four airborne motorized units were formed along with, by 1936, thirty battalions of trained parachute infantry. In the autumn of 1935, Red Army manoeuvres were carried out to demonstrate the new air landing capability to an international audience of military observers. Archibald Wavell, a highly decorated and experienced British officer, watched in amazement as 1,000 paratroops dropped from the skies to be joined by another 2,500 fully equipped soldiers and heavy equipment landed by aircraft and together carried out infantry assaults on nearby targets. 'If I had not

seen it for myself' he later wrote, 'I should not have believed it possible'. Impressive as it was, the British War Office chose not to take the matter further. Other observers, however, did.

In 1920, the humiliating Treaty of Versailles formally disbanded the German air force and no fewer than 14,000 aircraft and 25,000 engines were lost as a result. Thousands of former fighter and bomber pilots found themselves grounded. At the same time, the Reichsheer (the German army) had been reduced from six million men to a mere 100,000 and the Reichsmarine (German navy) to 15,000 including 1,500 officers. The Treaty had ensured that the German military would be a toothless force for defence only.

The years immediately following the end of the First World War were chaotic for Germany. The Russian Revolution had inspired communists in Germany to form the Spartakusbund (named after the leader of the slaves' revolt in ancient Rome) and when, in October 1918, the German navy was ordered to sea for one last glorious battle, its ships became afflicted with an epidemic of mechanical trouble. Red flags even appeared on the masts of some battleships and by 6 November the whole coastal region was controlled by the mutineers. Troops ordered to suppress the mutineers joined them instead. Eventually, army units with artillery support were brought in and thirty mutineers died in the ensuing fighting.

The mutiny and other civil disturbances, together with near economic collapse, made restoring order a priority not only for the German government but for the Allied occupation forces too and so a volunteer force of seasoned combat veterans was recruited to act as a peace-keeping force with 4,000 men deployed in a series of bloody clashes against the Spartacus rebels in the streets of Berlin. With Allied approval, fighting against the Russians continued along Germany's eastern borders and fear of communist takeover was used to recruit still more volunteers for the so-called Freikorps. Nearly a quarter of a million volunteers eventually came forward and the fluid nature of guerrilla warfare within Germany would prove to be the ideal training for the emerging tactics of *blitzkrieg*.

Elsewhere, cadres of experienced NCOs were hidden within the ranks of the Prussian police – a force that, armed with armoured cars, machine guns, rifles and pistols would eventually reach a strength of 85,000 men. Among them, the fourteen officers and 400 men of Police Group Wenke had been raised in 1933 by Goering in his capacity as Chief of Prussian police as an anti-terrorist unit to break up revolutionary political meetings and cells. In January 1936, these men were chosen to become the core of the newly emerging Luftwaffe's parachute force. Aware of the Russian advances in airborne warfare, Goering, now Supreme Commander of the Luftwaffe, brought his pet project under the command of the armed forces and thus formed the nucleus of a force that would eventually become eleven divisions strong and would, in a series of devastating attacks, change the face of land warfare forever.[2]

The Treaty of Versailles was specific about military aircraft but failed to make any reference to gliders so that, as early as 1919, former air force pilots began to form gliding clubs to enable them to fly again. By 1920, Oskur Ursinius, editor of *Flugsport* (Sport Flying) was able to announce the first national flying competition to be held that summer at Mount Wasserkuppe, soon to become the mecca of glider pilots everywhere. The following year, Frederic Harth, flying a glider built with the assistance of a young man whose name would become a byword for later aircraft design – Willi Messerschmitt – effortlessly rode the thermals rising up the mountains. Previously, gliding had simply been a matter of flying in a straight line down a slope but Harth proved that soaring flight opened up all kinds of possibilities.

Among those watching the rise in popularity of gliding was Kurt Student, himself a keen glider pilot who would sustain a fractured skull in an accident in 1921. Student had been a cadet at the Imperial Military College at the age of 11 and had, in 1913, volunteered for flying duties fully expecting (and, indeed, hoping) to be rejected. Instead he found he was an able pilot and flew fighters throughout the war. Student and his wife took a paternalistic interest in the young flyers they encountered at gliding competitions across Germany in the 1920s, providing encouragement and financial help to promising pilots. Student was more than a rich enthusiast, though. Since 1920, he had been working in the Fliegerzentrale (Central Flying Office), tasked with the seemingly impossible job of equipping the non-existent German Air Force for future operations. Gliding, he believed, provided the perfect cover for the basic training of Germany's future pilots. Sport flying in Germany had become extraordinarily popular and by 1932 the German glider-flying association had over 60,000 active members. Seven years later, as Germany equipped for war, Goering had 300,000 glider enthusiasts from whom he could pick potential military pilots.

Russia, meanwhile, had not been a signatory to the Treaty of Versailles, nor had it been invited to join the League of Nations. Like Germany, Russia had a Socialist government and was treated as an outcast by the rest of the world and the two countries had much in common. In 1921, Lenin requested German help in training the new Red Army in return for which Germany would be allowed access to factory sites and training grounds far from prying western eyes.

In 1928, Student reverted to command of a battalion of an infantry regiment but took with him his ideas about the use and value of airborne troops. By 1938, his ideas had gained favour with Hitler and he was appointed as major-general in command of the 7th Air Division and given a free hand to build up the formation. Among the equipment available to him was a new development of an old friend.

In 1932, an experimental glider had been developed by the Rhoen-Rossiten-Gesellschaft Research Institute in Munich to act as a 'flying observatory' to allow meteorological readings to be taken at high altitudes without vibration or noise interference. Hitler himself took an interest in the project and raised the question

of whether large gliders could be developed for military purposes. As early as 1933, Russian pilots had begun testing cargo-carrying gliders and reports from Student and others who had been involved in glider training in both Germany and Russia had recognized the potential of such aircraft in supporting infantry on the ground. Student believed that Germany should go a step further. Gliders could be used, he argued, not only for supply missions, but as a weapon in itself, capable of delivering assault troops directly on to their objective. Classified 'secret', the project was turned over to the Deutsche Forschungsantalt für Segelflug (DFS or German Gliding Research Institute) and testing of the DFS 230 commenced in 1937.[3]

In June, 1939, senior airborne commanders had discussed the use of special teams of assault troops within the paratroop division and concluded that new tactics were needed to allow these elite groups to fulfill their mission. The design of both parachute and transport aircraft meant that, in order to jump successfully, both hands were needed to push the jumper out of the door in a horizontal dive, otherwise the tremendous force of the static line used to open the parachute could break ribs. This in turn meant that parachutists could not carry equipment or even a rifle so the *Fallschirmjaeger* jumped into action armed only with a pistol, collecting their weapons from canisters dropped from bomb racks at the same time as each 'stick' jumped. Worse, the Junkers Ju52 transport aircraft could only carry twelve men and a typical parachute drop spread the jumpers across at the very least a 300m area even in ideal conditions. Regrouping would take time and they would then have to locate and retrieve their equipment before the mission could start. (Even today, planners assume that in ideal conditions a large-scale parachute drop will require around fifteen minutes to become effective.) In contrast, the new DFS 230 glider, able to carry ten men and a sizeable equipment load, could land silently within 60 feet of a target and deliver a combat-ready force in a fraction of the time. Trials began immediately.

Chapter Two

'Here are the Germans!': Eben-Emael, 10 May 1940

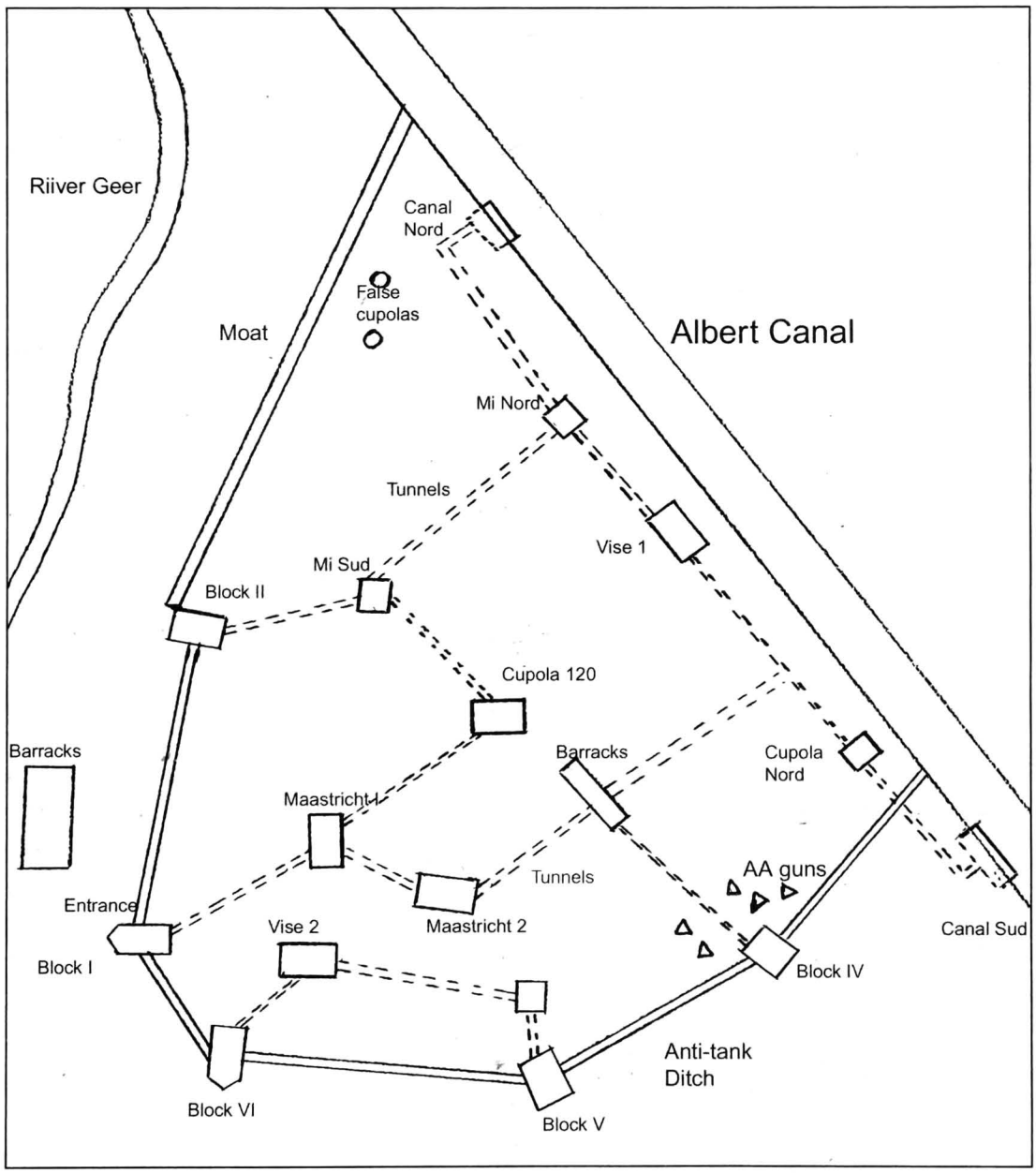
At noon on 27 October 1939, General Kurt Student, Commander of Germany's 7th Flieger (Airborne) Division received orders to visit the Fuhrer 'alone and without delay'. From his headquarters at Templehof airfield a limousine whisked him to the Chancellery where the puzzled general was immediately led in to see Hitler. Beckoning him to over to his desk, Hitler laid out a set of maps and aerial photographs of the most modern fortifications in the world – the Belgian Fort of Eben-Emael. 'For the war in the West' – Hitler hesitated, seeming unsure how to ask the question,

> . . . I know you have made some tests with gliders. You have some in your Division. I have a job for you and I want to know if you can do it. The Belgians have a fort here . . . The top is like a grassy meadow. They have heavy artillery in cupolas and casemates. I think some of our silent gliders could land on top of the fort and your men storm the works. Is that possible?[1]

It was a formidable task. First proposed in 1887 in the wake of the Franco-Prussian War by the Belgian fort designer General Henri Brialmont, Eben-Emael was the latest of a string of powerful fortifications built along the line of the Albert Canal to defend Belgium's border with Germany around the 'Vise Gap', an area whose loss, Brialmont warned, would cause Belgium to 'weep tears of blood'. In 1914, four of the twelve forts built in the late nineteenth century around the city of Liège to defend Belgium's command centre had been completely destroyed by the siege artillery of General von Kluck's 1st German Army as it crossed the Maas River not far from where Fort Eben-Emael now stood. The construction of the Albert Canal had created a formidable moat and, where it cut through the Caster hill near the towns of Eben and Emael, produced near-vertical 60 metre high cliffs which, coupled with an existing cliff along the Meuse River, provided protection for two flanks and an ideal location for a fortification. Construction began in April 1932 and continued at a relentless pace until completion in 1935 to create a diamond-shaped, two-storey reinforced artillery position 900 m long and 700 m wide with a commanding view of the

surrounding area. Its mission was to protect the Vise Gap to the south, the road and bridge network in the north, the Albert Canal due east, and lastly, if required, Belgium to the west. Fully manned, the fort held a garrison of 1,322 men roughly separated into two groups of around 500 artillery men and the rest technical and administrative staff. Garrison commander Major Jean Fritz Lucien Jottrand was, in turn, under the direction of the Regiment of the Fortress of Liège as the regional headquarters.

The fort's weapons systems were separated into two batteries. Battery 1 was composed of the artillery cupolas such as Cupola 120, a fixed non-retractable



Sketch map of layout of surface of the fort showing German targets for the attack.

cupola that held two 120 mm guns capable of revolving through 360 degrees and with a range of eleven miles; two more 75 mm cupolas named 'Nord' and 'Sud', which could be retracted into the underground fort, could also revolve their guns through 360 degrees and had a range of seven miles, and finally four casements with three 75mm guns each capable of firing five miles through a more limited arc of 70 degrees ('Maastricht 1' and 'Maastricht 2' oriented to the north, with 'Vise 1' and 'Vise 2' to the south).

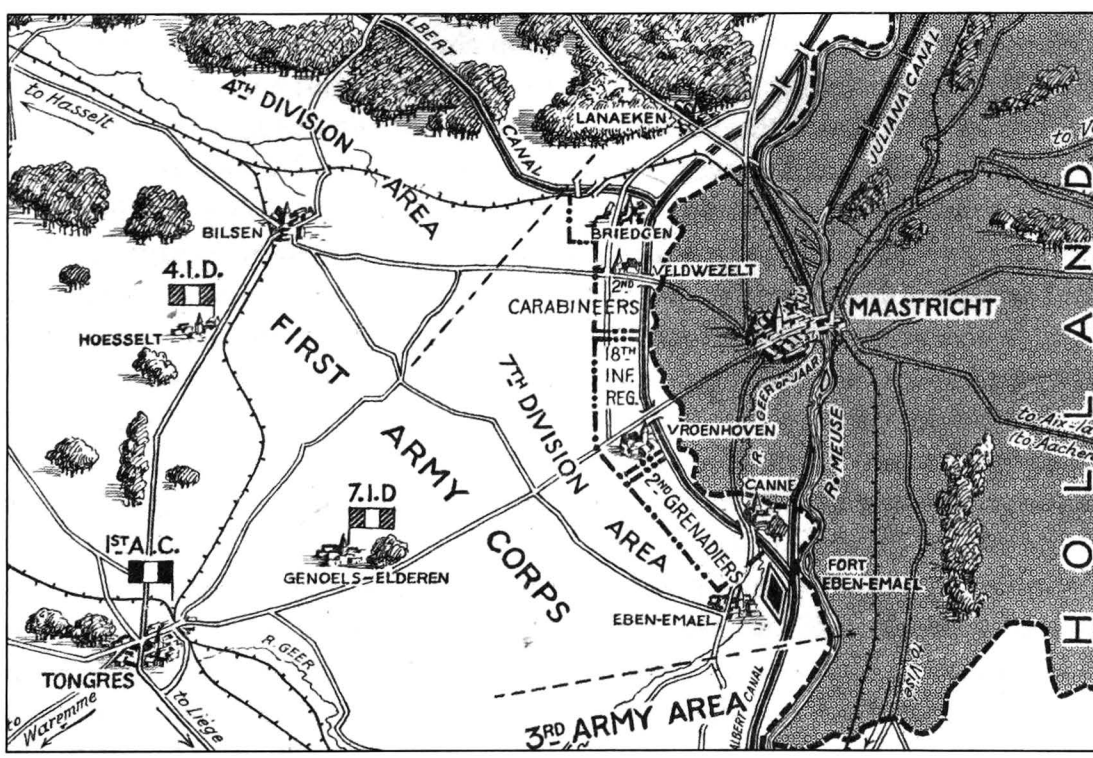
Battery 2, responsible for local defence, could call upon ten bunkers (usually referred to as 'blocks'), eight of them armed with one or two 60 mm anti-tank guns, five 60 mm anti-aircraft guns and eleven machine-gun positions with 30-calibre machine guns, searchlights and a small observation cupola covering the approaches. On the top of the fort were seven anti-aircraft machine guns, three false cupolas and three more large observation platforms for the forts in Liège sited in cupolas named Eben 1, 2 and 3. Six further observation cupolas were spread throughout the neighbouring countryside overlooking the Albert Canal and its bridges. Inside, seven miles of tunnels were divided into two levels with the ground floor containing barracks, machinery, generators for the heating, air conditioning, decontamination system, water purification from its internal well and a hospital. The intermediate level directly supported the batteries with fire direction control, command and control and ammunition storage. Little wonder that Fort Eben-Emael was widely regarded as virtually impregnable.

In itself, the fort was never really expected to stop an invasion, merely to delay it for as long as possible. Its artillery was tasked with covering three crucial bridges crossing the Albert Canal at the towns of Vroenhoven, Veltwezelt and Canne where von Kluck's army had advanced a quarter of a century before. Control of these bridges could facilitate or deny any invasion so, as historian James E. Mrazek put it, 'The artillery had to support the Belgian infantry which protected these bridges by preventing the enemy from getting close to or taking them. If the bridges fell to the enemy, the fort's artillery had to fire on and destroy the bridges.'[2] Stores for two months were kept stockpiled inside the fort but opinion differed on its likely effectiveness in the event of invasion with the French commander Gamelin confidently predicting it would hold out for five days at best. German estimates, however, suggested at least two weeks and that a direct ground assault could take anything up to six months and cost over 6,000 casualties. In any case, neither timescale suited the German plans for Western Europe.

One month before his meeting with Student, on 27 September 1939, Hitler had informed his General Staff of his decision to invade France and ordered plans made ready. Within weeks, General Walther von Brauchitsch, Commander in Chief, and his Chief of Staff General Franz Halder briefed Hitler on their proposed attack, codenamed *Fall Gelb* (Plan Yellow). As first presented, the plan was simply an enlarged version of the 1914 Schlieffen Plan intended to

outflank the Maginot Line to the north with the bulk of the Army attacking through the Netherlands and Belgium. A smaller force would then push through the lightly defended Ardennes and attack into Eastern France. General Erich von Manstein, Chief of Staff for Army Group A, and General Heinz Guderian, XIX Panzer Corps Commander, were both highly critical. In fact, when von Manstein obtained a copy the plan from Berlin in October 1939, he was dismayed. 'I found it humiliating, to say the least,' he later wrote, 'that our generation could do nothing better than repeat an old recipe.' The plan he was presented with anticipated only 'partial victory', not defeating France but only seeking to gain control of large parts of it as a base of operations and he quickly set about revising it to maximize the effects of the *blitzkrieg* ('lightning war') tactics developed by General Heinz Guderian.

When, in January 1940, plans for the attack fell into Allied hands following a plane crash, Hitler was forced to seek alternatives and General von Manstein was able to argue forcefully for his proposal that the attack into the Netherlands and Belgium would be a supporting attack, with the main effort going through the Ardennes near Sedan. On 24 February 1940 the fifth and final version of Plan Yellow was issued, calling for Army Group A, under General Gerd von Rundstedt, to break through the Allied centre and attack through the Ardennes with a total of forty-five divisions, including seven panzer formations, to thrust towards the French coast at Abbeville. Army Group B, commanded by General



Contemporary map of the area around Eben-Emael with the fort, bridges and Allied units marked.

Kurt Arthur Benno Student

In 1945, Student surrendered to the British and was held at the Island Farm camp at Bridgend in south Wales where he was interrogated about allegations of the mistreatment and murder of prisoners of war and was indicted for war crimes committed in Crete at the Nuremburg trials. Goering had ordered the deportation of male Cretan civilians over the age of 14 in reprisal for a series of horrific partisan attacks on German troops in which captured soldiers were reported to have been crucified and mutilated. During the trial it emerged that Student had been able to undermine the order and New Zealander General Inglis testified that Student had opposed the activities of the SS in the island. In May 1947, the charges were reduced to having failed to prevent war crimes and Student was found guilty of three of the eight counts and sentenced to five years in prison, but the verdict was never confirmed. In September 1947, the Greeks asked to have Student turned over to them, but this request was refused. Later Student was given a medical discharge and was released from prison in 1948. Student was married and had one son, who died on military service. He was known for his energy, intelligence, precision and drive but had few interests outside of his career and hunting. He died aged 88 in Lemgo, West Germany, on 1 July 1978.

Fedor von Bock, would attack into Belgium and the Netherlands with twenty-nine divisions including the remaining three divisions of panzers and draw the French and British to the Dyle Line. If the diversion was to be successful in drawing the allies and preventing a flank attack on the vulnerably stretched supply lines of Army Group A, the slower moving infantry units of Army Group B would need to reach the Gembloux Gap. Although the gap was ideal for the type of highly mobile warfare the Germans intended to use, to reach it they first needed a way to cross the Meuse River and the Albert Canal, which ran parallel to it. Three bridges across the canal at Veldwezelt, Vroenhoven and Canne and three more across the Meuse at Maastricht would need to be captured intact prior to any German advance. The whole operational concept hinged on the destruction of Fort Eben-Emael and the capture of the Albert Canal bridges at the very beginning of the campaign.

Student considered the problem. Both men knew the risks involved in attacking strong fortifications. The fighting around Verdun in 1916 had been costly and inconclusive and the German plan could not afford the time to try a ground assault. For this mission to succeed, the Belgians could not be allowed time to destroy the bridges already prepared for demolition. The DFS 230 glider, carrying ten men and equipment weighing no more than 4,608 lb, could land alongside its target silently and deliver a combat-ready force in a fraction of

the time it would take to land an effective parachute unit and seemed the ideal choice for the mission, with the initial attack by glider supported by parachuted reinforcements later. Suitable drop and landing zones existed near the bridges, allowing the reinforcements to be dropped once the Belgian defenders had been overwhelmed. The real problem would be the guns at Eben-Emael and their ability to destroy the bridges from the safety of the fort itself. Student thought the idea sounded both incredible and brilliant but he was unsure and told the Fuhrer he would need to think it over.

During the night, Student wargamed the scenarios and concluded that such a precision assault could not be carried out in a night attack but he told Hitler that the plan 'may be possible under very special circumstances: the landing must be made in daylight, or at least morning twilight and not before; and I am uncertain about the amount and type of explosives needed to be used against the forti--fications'.[3] With great enthusiasm, Hitler then described a newly developed type of explosive charge, the *Hohlladung* or 'hollow charge'. The principles of a hollow charge had first been described in 1888 by Charles Munroe. It works by allowing a conventional explosion to create a jet of high pressure which generates a tremendous penetrating capability using a relatively small charge. The force of the explosion melts a steel liner and sends a molten metal stream of hot gases and metal splinters through a narrow hole into the target so that, used against armour, 'the explosion would generally blow a one foot hole in the objective and kill everyone inside'. German munitions scientists had perfected the technique and developed a weapon capable of blowing a hole in any known type of steel or concrete. Used properly, Hitler enthused, nothing could withstand it. The large 50 kg charge, capable of penetrating up to ten inches, was divided into two spheres and needed a team of two or three men to assemble the two halves, put it into place as a demolition charge, fuse and detonate it. A smaller single sphere 12.5 kg charge was also available and capable of penetrating up to six inches. Student listened, amazed. Such a weapon made the whole thing not only possible, but almost certain to succeed. Forty-eight hours after their first meeting, Hitler told Student: 'I order you to take Fort Eben-Emael. All aspects of the operation must remain absolutely secret. The code name for this operation will be GRANIT.'

A week later, on 2 November 1939, Hauptmann Walter Koch, a 30-year-old former member of the Prussian Police's Herman Goering Regiment, was notified of a move for himself and men of the 1st Company, 1st Battalion Fallschirmjaeger-Regiment 1 (FJR-1 or 1st Parachute Regiment) to Hildesheim, where they would form part of 'Test Section Friedrichshafen'. There he would be joined by Leutnant Rudolf Witzig and men of the Pioneer Platoon of the 2nd Battalion FJR-1 and by Leutnant Kiess from the division's glider group – supplemented by a number of gliding champions with proven ability to perform precision landings who had been 'invited' to join the group. The unit was soon retitled *Sturmabteilung* (Assault Group) Koch and his comrades began what

would become six months of intensive training in the utmost secrecy for their mission.

Koch was ordered to seize and prevent the destruction of the three bridges and silence the artillery positions at Fort Eben-Emael so divided his forces into four assault elements. Each assault element's objective was named for the primary building material used in each structure's construction. The bridges at Veldwezelt, Vroenhoven, and Cannes were named respectively Objectives *Stahl*, *Beton* and *Eisen* (Steel, Concrete and Iron). The fort itself was named Objective *Granit* (Granite). An independent, but connected mission would be undertaken by Battaillon zur besondern Verwendung 100, an undercover *Abwehr* (Intelligence) unit. In civilian clothes they would infiltrate into Maastricht on bicycles to sabotage attempts to blow the three Meuse bridges. They would be supported by motorcycle troops of Sonderverband Hocke disguised in Dutch police uniforms and expected to link with elements of the 4th Armoured Division by 1000hrs on D-Day.

Oberleutnant Altman, with around ninety soldiers and ten gliders, would seize the bridge at Veldwezelt ('Steel'). The bridge at Vroenhoven ('Concrete') would be taken by Oberleutnant Schacht and his assault team of one hundred soldiers and eleven gliders. Hauptman Koch decided that command and control of the whole operation would be best coordinated near this strongly built bridge because of its central location and its being most likely to survive attempts to destroy it. Objective Iron, the operation to seize the bridge at Canne, was commanded by Leutnant Schaechter with eighty men in nine gliders. Oberleutnant Kiess would be responsible for training the pilots and maintaining the gliders and the final, crucial task of silencing Fort Eben-Emael, 'Objective Granite', fell to Oberleutnant Rudolf Witzig and his eighty-six-man engineer platoon.

Witzig was a strict disciplinarian and a meticulous planner. Like many of the new breed of officers emerging within the German military, he had already recognized what the modern German army calls *Auftragstaktik* and describes as

> the pre-eminent command and control principle in the Army. It is based on mutual trust and requires each soldier's unwavering commitment to perform his duty . . . the military leader informs what his intention is, sets clear achievable objectives, and provides the required forces and resources. He will only order details regarding execution if measures which serve the same objective have to be harmonized, if political or military constraints require it.[4]

Believing that realistic training was the only way to rehearse for any operation, Witzig's greatest strength was, as one of his men put it, 'his regard for the enlisted man and his squad leaders, giving them the necessary freedom and responsibility for their own plans'. He had identified three tasks: first, destroy any weapons on

top of the fort that could impede the landing of the gliders and movement across the roof area; secondly, put the gun batteries threatening the bridges out of action; and last, prevent a counterattack by the garrison by destroying entrance and exit points from the underground defences. The mission's success relied on speed, with Witzig reckoning that he would have perhaps an hour before what Student later called his 'Lilliputian force' would be overrun by a Belgian counterattack. Recognizing the need for rapid support, a Luftwaffe liaison officer, Leutnant Egon Delica, was assigned to the platoon to act as forward air controller and communications officer responsible for calling in air support from Luftwaffe bombers and fighters and for the planned resupply drop of ammunition. The plan also contained a linkup with lead elements of the 4th Panzer Division after it crossed the Albert Canal. The 51st Engineer Battalion, part of the 151st Infantry Regiment Group, would cross the Canne Bridge to relieve and support Witzig's force.

For the next six months, Sturmabteilung Koch trained in total seclusion at Hildesheim and in Poland and Czechoslovakia where scale model rehearsal sites were set up using aerial photographs and where fortifications of a similar design to Eben-Emael had been found. During glider insertion training, it became clear that the gliders would have difficulty landing on the confined space on top of the fort where there simply was not enough room for all the aircraft. Makeshift efforts, such as wrapping barbed wire around the landing gear, helped shorten the landing whilst DFS worked on the design of a new hand brake (effectively a plywood frame that dug into the ground on landing). The pilots continued to train hard so that, by March 1940, they were able to take off at night in small two to three glider formations and land at airfields they had not seen before, bringing their craft to within 15–30 feet of their target. Witzig took glider training one step further and incorporated the pilots into the assault sections, ensuring that they were soon capable of using every weapon carried by the platoon. Platoon members went to demolition schools, studied fort design by conducting interviews with engineers and contractors (parts of the work building Eben-Emael had been subcontracted to German firms but, contrary to later reports, these contracts were limited to outside walls and had very little to do with the fort's weapons and internal layout) and underwent endless 'Battle Focused' physical training, emphasizing climbing and running with full equipment. By March, Assault Force Granite had completed two full dress rehearsals, including glider takeoff and landings and attacking scale model objectives. Only two aspects of the operation were not rehearsed: a full glider takeoff by the entire Sturmabteilung and the deployment of the hollow charge, which was also being developed for use as a detonator for German atomic bomb research and too secret to risk being compromised during training. Witzig was the only member of the assault group to see it detonated before the mission.

Throughout, operational security was the most critical component of mission

success. Even the slightest warning of what was to come could have led to the Belgians placing more machine guns on the roof of Eben-Emael and wiping out the assault force as it landed. General Student later wrote that the 'whole premise behind the operation was that no leak in security could compromise the mission, and the only way for this mission to be successful was to achieve total surprise'.[5] As a result, from the time Student first received his orders from the Fuhrer, only five officers knew the exact location and name of the target. Sturmabteilung Koch changed its name every time it moved to a new location, at times becoming Experimental Section Freidichshafen, at others Airport Construction Platoon. No insignia was worn, even the names of team members were kept secret. Each move saw the gliders dismantled and driven to new sites in furniture removal vans before being locked and guarded in hangers where a perimeter fence covered with straw mats shielded them from prying eyes. Letters to families were censored by Witzig, Koch or Kiess and soldiers remained shut away from either civilian or military contact. Sergeant Helmut Wenzl, the senior enlisted man in Witzig's platoon, later recalled that 'we couldn't go into bars but we could go to the movies. However, we had to have guards. Also, we didn't wear insignia, and we had no names. Once we ran into some girls we knew [and] the whole unit had to be transferred.'[6] In addition, every man in the company signed a statement that: 'I am aware that I shall risk sentence of death should I, by intent or carelessness, make known to another person by spoken word or illustration anything concerning the base at which I am serving.'[7] Two members of the team, seen talking to men of another unit near the hangar, were even sentenced to death but reprieved to take part in the operation and, on the day before the assault, two Luftwaffe men who strayed too close to hangar found themselves arrested and held until the operation was over.

As May 1940 approached the men were anxiously awaiting the assault order, code name 'Danzig'. Finally, at 1930hrs on 9 May 1940, the call came and the teams made their way to two airfields near Cologne, Germany, happy to be finally on their way after months of virtual captivity. The glider takeoff had been scheduled for 0430hrs on 10 May, to allow for all four objective groups to land simultaneously at 0525hrs, just five minutes before the main German attack west began. In the pre-dawn gloom, the men sang as they bumped across the airfield, drowning out the rattling noises until silence descended as they rose behind their Ju52 towplanes. By 0450hrs, forty-two unmarked gliders were airborne and under strict radio silence followed a route marked with light beacons until they reached the border.

Inside Fort Eben-Emael, an alert warning had been received from the Liège Headquarters at 0130hrs detailing German troop movements near the border but already there had been three similar alerts that month alone and the message was treated as just another drill. The fort's commander, Major Jottrand, was sleeping in his villa when the report was received and he was woken to be informed of the situation.[8] He immediately contacted Liège for more information and ordered

the garrison to go through the standing alert drill which required gun crews to fire twenty blank rounds from the 75mm gun at Cupola 31 at 90 second intervals to alert the canal bridge section of a possible attack and summoned any remaining gun crews garrisoned in the local area. Fort Eben-Emael, largely underground, was not a healthy place to work. Of the 1,322 men garrisoned there, only 1,198 were fit for duty that night.

By 0415hrs, Lieutenant Longdoz, in charge of the fort's anti-aircraft and machine gun posts, reported that the most of the men were at their posts, including the troops who normally manned the surface-mounted anti-aircraft guns. Twenty minutes later, Captain Hotermans, commander of the artillery battery, ordered Cupola Sud to begin firing their blanks. As they prepared to do so, gunfire was heard from the direction of nearby Maastricht and Major Jottrand realized that this was not just another drill. Standing orders demanded the immediate destruction of the barracks and administrative buildings just outside the fort's entrance in order to clear fields of fire and, short of manpower, gun crews were used to carry out the mission to clear the front entrance, leaving only skeleton crews in some positions and leaving others entirely unmanned. Then, at 0500hrs, reports came in from both the Canne Bridge and the fort's observation posts that aircraft were overhead but no engines could be heard and the aircraft appeared to stop in mid air. After hearing these reports, Major Jottrand ordered the Canne Bridge blown but his responsibility did not extend to either the Vroenhoven or Veldwezelt bridges which were under the command of Captain-Commandant Giedelo stationed at Lanaeken, too far away to be aware of the situation.

As dawn approached, the fort's anti-aircraft gunners reported 'airplanes with blocked engines' in sight but were told 'shoot only if you can identify them as enemy'. The unmarked gliders were within 200–300 m before the firing began. Almost immediately, one machine gun jammed and the three others were only able to fire their starter belts of 40–50 rounds before they, too, broke down. Fort Eben-Emael had seven authorized anti-aircraft guns, but only four were in position and brought into action too late. The first glider landed at 0525hrs. The Canne bridge crew reported that it had blown the bridge but was now under attack.

Soon after crossing the Rhine, Witzig's Ju52 towing aircraft went into a steep dive to avoid another plane, causing the glider's tow rope to break. Knowing that they could not make it to the objective, pilot Corporal Karl Pilz landed in a nearby grassy field as close to Cologne as possible. As his crew began clearing fences and hedges in hope of making a makeshift airstrip, Witzig commandeered a local civilian's bicycle and made his way to a nearby village. Luckily, the village garrisoned an army unit that gave him a car to drive back to the airfield some seventy kilometres away where he picked up a spare cable, a set of wheels for the glider (the DFS 230 jettisoned its wheels on takeoff) and arranged for a new Ju52 tug aircraft to be flown from the airfield at Goetersich. He then flew back with

the tug to the rough landing strip prepared by his men and landed where his glider had been forced down. With the engines still running, the crews quickly fitted the cable, lifted the glider onto the new wheels and took off again for the fort. They finally arrived only two hours late. Glider 2 also encountered difficulties, the pilot, Fritz Bredenbeck, had been released too early by his towplane and had been forced to land near the town of Düren, still inside Germany. Commandeering a passing motorcycle, Feldwebel Maier found a nearby engineer unit and borrowed two staff cars. Arriving back at their landing site, the section piled their equipment into the cars and set off in a dash westward, determined not to miss the action.

At the fort, the remaining nine gliders had now all reached their targets and Witzig's men sprang into action. Gerhard Raschke, flying Glider 1, was forced to take evasive action as he came under heavy anti-aircraft fire. The resulting hard landing stunned Leutnant Delica, Feldwebel Niedermeier and the men of 1 Section but brought them directly alongside their target. Recovering quickly, the men followed the often rehearsed drill and placed a 50 kg hollow charge on Eben 3, the observation cupola on top of Maastricht 2, the south-west cupola with its three 75 mm guns. Theirs was the first explosion of the attack and the blast knocked Niedermeier and a comrade down and killed two of the Belgian defenders. Next, a 12.5 kg charge was placed on one of the guns where the blast hurled it against the back wall, killing more Belgians and creating a gap large enough for the Germans to enter. Niedermeier and two of his men threw grenades into the newly created entrance and entered firing their weapons before dropping 3 kg charges down the staircase. As artillery fire from Cupola Sud began to land near Maastricht 2 Niedermeier ordered his men inside the casement and sent a runner to find the platoon headquarters and inform Oberleutnant Witzig of their mission success. They would remain there throughout the day, holding back repeated counterattacks. Below them, Sergeant Poncelet, in charge of Maastricht 2, had already after lost three men dead and seventeen wounded when he ordered the building of emergency barricades to prevent the Germans from gaining

Rudolf Witzig

The commander of the assault pioneers who took Fort Eben-Emael went on to rise to the rank of colonel and commanded FJR 18 from late 1944 until its surrender in April 1945, adding the Oak Leaves cluster to the Knight's Cross he had won in 1940. In 1957 he rejoined the military in the fledgling Bundeswehr and again commanded airborne pioneers until his retirement in 1974. He died aged 85 on 3 October 2001 at his home in Oberschleissheim.

access to the fort's tunnel system, sealing the access door with sandbags and steel rods.

Alfred Supper circled the fort twice before he brought Glider 3 down just 60 feet from his objective, Maastricht 1, the westernmost cupola whose three 75 mm guns were being trained on the bridges. Feldwebel Peter Arent and his section immediately sprang into action but could not find a door or observation dome on which to affix a 50 kg charge. Instead, they tried to attach the charge to the muzzles of the guns but found them coated in preservation grease and the charges slid off. Eventually, Arent attached a charge to the ball joint at the base of gun number 3. It exploded and as black smoke poured out of a large hole, groans and cries could be heard from inside the cupola where the gun had been torn from its hinges and blown back into the casement wall. Arent dropped two hand grenades into the large opening and fired his machine pistol as he and two others entered the casement to find four heavily wounded Belgian defenders inside, all badly shocked. Soon artillery from Cupola Sud began falling outside Maastricht 1 and Arent took his squad under cover inside the casement. Noticing a staircase leading into the depths of the fort, he took two men and went down only to find two massive steel doors blocking the doors. Returning to the surface, the men found that the artillery fire from Cupola Sud had stopped and they immediately attacked and neutralized Block 2 with a hollow charge. The section then remained in the area between Maastricht 1 and Block 2 to harass incoming Belgian patrols with small arms fire and even managed to use one of the casement guns to fire onto those patrols.

The following morning, Arent again made the trip down the staircase. This time he took with him a hollow charge in an attempt to penetrate the fort's interior. Modifying the eight second ignition, Arent exploded it against the doors, killing six Belgian soldiers instantly as the door and steel beams were blasted across the passage. Shock waves blasted through the tunnels and convinced the defenders that the attackers had gained entrance to the underground chambers. By chance, the blast had also destroyed drums containing a chlorine-based disinfectant and the smell began to drift through the air vents, causing panic to spread among the defenders who feared a gas attack was under way. Although it also destroyed the staircase to the surface and prevented the Germans from taking advantage of the damage, it would be the turning point in the battle.

Casement Mi-Nord, the northernmost machine-gun bunker, was the responsibility of Oberfeldwebel Helmut Wenzel and Section 4. As their pilot, Otto Brautigam, brought their glider down, Sergeants Vossen and Bataille leapt out and immediately opened fire. Wenzel, who suffered a bloody nose during the landing, moved his men to the top of the casement and placed a 1 kg charge in the space which once housed a periscope. When this failed to silence the gun, Section 4 placed a 50 kg hollow charge on the steel cupola but this also failed to penetrate the armour plating. Although it was not enough to accomplish the Section 4 objective, it was enough to cause the Belgian crew to

abandon the position. Not satisfied with partial victory, Section 4 exploded another large hollow charge. When the debris stopped falling and the dust settled, Oberfeldwebel Wenzel (forever after known as 'the cupola smasher') stepped through the newly created hole and heard a telephone ringing. Lifting the receiver, he couldn't resist answering the phone in English 'Hallo, here are the Germans!' A stunned silence at the other end was followed by a strangulated 'Mon Dieu!'[9] Within fifteen minutes, his section's mission accomplished, Wenzel ordered his men into defensive positions and waited for Oberleutnant Witzig to arrive at his position, which was designated as the platoon headquarters.

Section 5, led by Feldwebel Haugh, encountered a different set of difficulties as it made its final approach toward their objective. It was hit with machine-gun fire and glider pilot Karl-Heinz Lange recalled later that 'our first target was the antiaircraft guns, if we were on the short final [and] they shoot in my direction [then] it was easy for me to find my target because I could see the fire of the bullets if I looked over my shoulder, So I had to follow this direction.'[10] The pilot manoeuvred the glider towards the machine gun as they landed and, by sheer luck, the glider's wing caught the sandbag machine-gun emplacement, putting it temporarily out of action. The noise of the landing brought four Belgian defenders out of the nearby wooden barracks, only to find Lange standing next to his cockpit pointing his pistol at them.

Seeing the guns from Cupola Sud firing on top of the fort, Section 5 decided to attack, placing two 50 kg charges on its surface. The explosions shook the Belgian crew and dislodged the gun mounts but the gunners continued to fire, although their guns now required time-consuming adjustments after each salvo. The remainder of the Belgian defenders in the barracks fired a machine gun from the rear window towards Cupola Nord and at Section 8 as they landed.

Feldwebel Unger and Section 8's glider flew a wide circle, trying to avoid the fire and Hans Distelmeier flew in low and fast from the south, landing within 60 feet of Cupola Nord, the easternmost pair of 75 mm guns. It immediately came under heavy machine-gun fire from the north which killed Feldwebel Unger and one of his men. Taking charge, Oberfeldwebel Else placed a machine gun to provide covering fire for the assault. A 50 kg hollow charge was put on the top of Cupola Nord and a 12.5 kg charge against the steel entrance door but both exploded with no visible effects. A second attempt not only blew the door off its hinges, but also caused the surrounding concrete to collapse, sealing the entrance. Section 5 under Haugh then noticed that Unger's glider was in trouble, with a casualty lying on his glider's wing while heavy machine-gun fire pinned down the rest of his section. As Haugh moved to help Unger, his section also came under fire. The two sections united and destroyed the machine gun position, though the action cost the squads heavily with two killed, one seriously wounded and several injured. Artillery from the Cupola Sud,

which Feldwebel Haugh thought he had destroyed, again began firing across the surface.

Inside Fort Eben-Emael, Major Jottrand ordered the 'general attack', a signal to shoot at any unidentified person and to be prepared to fire the artillery at a moment's notice. Sitting in his command post, he tried to figure out what was going on and to anticipate the Germans' next move. He could only wonder and wait for further information.

Elsewhere, inside Cupola Nord, Belgian defenders Sergeants Kip and Joris, the 75 mm gun crew, had been in position by 0430hrs and had reported seeing enemy activity before the attackers landed. Sergeant Joris, Cupola Nord commander, realizing what was going on top of the fort, was in the process of carrying anti-personnel ammunition up the staircase when the first hollow charge exploded. Luckily for the Belgians, no one was in the turret at the time. Oberfeldwebel Else, seeing no visible effect from the hollow charge directed another to be placed near the steel exit door. This second explosion damaged the electrical equipment and rendered the cupola inoperative. His mission complete, Else took charge of Section 8 and moved to the platoon headquarters near Mi-Nord. Twenty minutes after the first glider landed, Major Jottrand ordered the tunnel sealed and Cupola Nord abandoned.

Feldwebel Ewald Neuhaus and Section 9's glider had been shaken by Dutch anti-aircraft fire near Maastricht but pilot Gunther Schulz still managed to land within 150 feet of the objective, skidding to a halt entangled in the perimeter barbed wire. The wire was quickly breached and a 12.5 kg hollow charge was placed on the machine-gun embrasure of Mi-Sud, a bunker located in the north-west of the fort. Another 50 kg charge was then blown next to the neighbouring embrasure, creating a space large enough for Neuhaus to enter and find Mi-Sud had already been abandoned, its crew ordered away to assist in destroying the barracks and administrative buildings just outside the fort's entrance. His mission complete, he immediately organized his men for defence and sent a runner to find Oberleutnant Witzig to report his progress.

Feldwebel Willie Hübel and Section 10 were designated as the reserve. On landing without incident, a runner was sent to platoon headquarters to report their position. Oberfeldwebel Wenzel, now in charge since Witzig could not be found, ordered the attack on Vise 1, originally designated as the missing Section 2's objective. Within five minutes, the observation cupola was blown and the guns silenced. Feldwebel Fritz Heinemann with Section 7, and Feldwebel Siegried Larlos, with Section 6, attacked what turned out to be false cupolas in the northernmost portion of the fort and set up defensive positions oriented towards the Geer River in the west. In the first thirty minutes of the attack, all anti-aircraft guns and surface-mounted machine guns had been destroyed. Mi-Nord, Mi-Sud, Vise 1 and Cupola Nord were neutralized. Cupola Sud was damaged and, though firing, was doing so at a reduced capacity. The German attackers had freedom of movement on top of the fort.

Wenzel now noticed the 120 mm guns at Cupola 120 in the centre of the fort, had not been attacked. Neutralizing Cupola 120 was another task assigned to Feldwebel Maier and Section 2. Inside it, Sergeant Cremers, casement commander, saw the gliders land and at 0530hrs ordered gunners to attack the Germans. When the Belgians tried to operate the gun's ammunition hoist and rammers they found that electric power was not available and frantically tried to fix the problem. Lange, the glider pilot from Section 5, was escorting prisoners to platoon headquarters as the 120 mm guns suddenly swung around toward him. Fire from Cupola Sud fell around him, wounding him in eight places, but Lange was more annoyed than hurt. Ordering the prisoners to lie down, he retrieved a hollow charge from his glider. Dragging it to the cupola, he lit the fuse and ran. The explosion caused no visible effect on the turret but attracted the attention of Ernst Grechza from Section 5, who came over to investigate. The night before, Grechza had filled his water bottle with rum and was now clearly drunk as he climbed on the huge guns and rode them as the Belgians swung them in a circle. Wenzel appeared and calmly dropped a 3 kg charge into each barrel. The explosion shattered the gunners inside and put the casement out of action. Two hours later, Sergeant Cremers returned and ordered the gun to resume firing. The first round split one barrel open and filled the casement with smoke. The casement was never fired from again.

Sturmgruppe Veldwezelt – Objective 'Steel'

The nine gliders carrying Oberleutnant Altmann and his men lifted off without problems but fog obscured the target and the gliders landed in a more dispersed pattern than planned. Glider 6 landed 1000 m from their target and the headquarters group around 400 m away. As they approached the bridge at 0520hrs all encountered heavy anti-aircraft fire and the last glider, tasked with securing the southern edge of the bridge, took a direct hit, losing part of its left wing and splinters wounded the pilot in the head. It stalled and crashed from a height of around 10 m, disabling all but two of the section aboard.

Glider 2 spun around on landing, causing one man to break his arm in two places. All landing sites were wetter than expected and mud caused several stoppages so instead the Germans used captured Belgian weapons to lay down suppressive fire as a section under Ellersieck raced to capture the concrete bunker alongside the bridge by lobbing hand grenades and three 20 kg charges through the open door before taking out the pub and three houses next to it with two grenade boxes.

Engineer-Group A cleared the demolition charges from the bridge whilst more paratroopers took on and destroyed a machine-gun bunker west of the bridge held by fifteen Belgians. The engineers then cleared all obstacles on the bridge still under enemy fire. After all groups set up their defences they established contact with the Group HQ from a trench 150 m south-west of the

bridge – all within the first ten minutes of the attack. Over the next thirty minutes a series of small, disorganized counterattacks were fought off but the planned support by artillery, Stukas and light bombers was slow to arrive.

At 0615hrs heavy machine gun teams were dropped by parachute to reinforce the bridgehead. One planeload jumped about 1000 m too far to the west with the planes under heavy ground fire. One soldier was killed, one lightly wounded and one parachute failed to open, but the newly arrived paras quickly cleared a trench in their landing zone as the second machine gun took up position and laid down flanking fire.

Fifteen minutes later, the enemy had begun to recover from the shock and began several small counterattacks which were fought off by small arms fire until, at around 0900hrs, the first strong, organized attack came from the town of Veldwezelt to the north-west of the bridgehead. Air attacks and fire from all weapons stopped it before it could build momentum but for nearly an hour, isolated firing from an area 500 m south-west of the bridge kept everyone alert as both sides gathered their breath.

At 1000hrs, Belgian artillery and mortar fire began to rain down but German air attacks suppressed them until contact was established with Flak-Abteilung Aldinger whose 88 mm guns were directed onto Belgian machinegun positions with great effect. Around noon the enemy artillery and mortar fire started again and again was stopped after air attack. Shortly before 1300hrs an artillery observer arrived at the bridge and guided artillery fire on Veldwezelt and the road to Vroenhoven. Ninety minutes later, the first infantry elements arrived and reinforced the bridgehead. A brief artillery attack at around 1900hrs was yet again ended by air support and, at 2100hrs, after fifteen hours on the ground, Sturmabteilung Koch was withdrawn and moved towards Maastricht. Altmann's men had achieved their mission at a cost of eight dead, fourteen severely wounded and another sixteen with lighter wounds. Belgian casualties included around eighty-five men killed and 200 captured.

Sturmgruppe Vroenhoven – Objective 'Concrete'

Leutnant Schacht's eleven gliders tasked to seize objective 'Concrete' took off from Cologne-Ostheim at 0430hrs but during the flight the glider carrying the pioneer troop under Oberjäger Kempa had to land at Hottdorf when the tow rope broke. The remaining gliders were released at 2,000–2,200 m between the German border and Maastricht – whose lights had acted as a navigational aid. At 1800 m the gliders began receiving heavy enemy anti-aircraft and machine-gun fire from the direction of Maastricht but the pilots managed to get through without casualties.

The bridge was clearly visible as they approached and, at around 100 m from the ground, a barrage of small arms fire from the trenches around the bridge began to hit home. The glider carrying OberGefreiter Stolzewski and Section 8

was hit, damaging the steering ropes and causing it to drop out of control from a height of around 12 m and seriously wounding three men. By around 0515hrs all the gliders were down near their targets, although that carrying the command group under Oberfeldwebel Hofmann – intended to land right beside the bunker guarding the bridge – came to a halt in a trench 150 m to the north-west. Three of the section were wounded and the machine gun, two rifles and one machine pistol put out of action. The crew quickly left the plane and cleared the trench back up to the bunker where Gefreiter Stenzel could see through the open door that the defenders were preparing to blow up the bridge. At the very last second, he managed to find and cut the detonator wire. The bridge was secure.

All the glider crews that landed near the bridge immediately put their carefully rehearsed assault into action. Two section commanders, Röhrich and Giese, led their teams against the flanking bunkers at the canal and put them out of action. Meanwhile, the engineer groups blew up houses next to the bridge to clear fields of fire. The command group under Schacht had been tasked to take buildings 1,200 m west of the bridge identified as barracks by Koch, but which actually turned out to be empty horse-stables. The group were now far from the supporting fire of the rest of the force and dangerously exposed. The second glider of the command section with the radio-group landed about 500 m west of the bridge and lost one man killed instantly by a headshot as the glider touched down. As a result, for the first hour the teams around the bridge operated solely under their NCO section commanders until Hofmann took command of the Sturmgruppe and OberGefreiter Orth brought the radios back to Hoffman's

Gerhard Schacht

'Owl' Schacht was commander of the team that seized Vroenhaven bridge on 10 May 1940. Wounded in the attack, Schacht recovered and served in Africa and the Mediterranean. In January 1944, a British commando raid in Italy led to a number of prisoners being taken. Hitler's infamous order to execute all captured special forces troops was in place but Schacht personally intervened to save Lieutenant Hughes as he faced a firing squad.

He later served on the Eastern Front and rose to the rank of colonel in command of FJR 25. It was men of this unit who reinforced the Breslau garrison in the closing stages of the war, making Schacht one of the first and last men to command combat glider assaults. He retired as commander when he was wounded on 16 May 1945.

In 1957, he joined the Bundeswehr and served as military attaché in Tehran before being given command of the 1st Air Landing Division with the rank of Generalmajor. He died after a short illness on 7 February 1972, aged 56.

position to establish contact with the other assault groups and 7th Airborne Division.

Combat patrols under OberGefreiter Borchardt cleared the area for around 600 m around the bridge whilst over to the east, machinegunners Haas and Schmidt held off an enemy counterattack. After a short but heavy firefight, the Dutch commander surrendered and ordered his troops to stop firing as they began to withdraw towards Maastricht. Half an hour after landing the bridge was secured.

It was not until around noon that it became possible to recover the survivors of Schacht's group. Three paras were dead, another six severely wounded. They regrouped around the bridge and the 300 or so prisoners they had taken were pressed into service clearing tank obstacles. Gahme's section dismantled the explosive charges and cables on the bridge and cleared a path through the minefields. As the work got under way, around 1250hrs the first regular infantry unit arrived.

At 1830hrs an unsuccessful barrage of heavy artillery attempted to destroy the bridge but it was too late. An infantry battalion arrived at 2140hrs and Sturmabteilung Vroenhoven began the move back to Maastricht, leaving behind them seven dead and twenty-four wounded. Around 120 defenders had been killed and 300 captured.

Sturmgruppe Canne – Objective 'Iron'

Leutnant Schächter's group left Cologne-Butzweilerhof in ten gliders. As they neared their objective, the glider carrying Section 1 was released too early at 2,000 m and couldn't make enough speed to carry it to the landing zone so the pilot landed on the heights south-west of the bridge. The rest of the force released too late and encountered heavy enemy anti-aircraft fire behind Aachen. The delay meant that Canne's defenders had been alerted and blew up the bridge around 0535hrs. At 0540hrs, the Sturmgruppe reported: 'Canne: reached objective, heavy resistance, bridge destroyed but passable with engineers help.'

Poor visibility had been a problem at all the bridges and again the gliders did not land as originally planned. Section 9's glider came down about 200 m south of the bridge at the village of Eben-Emael. The gliders of Sections 6 and 7 landed not on the northern heights commanding the bridge but on the middle heights below them. Section 3's aircraft was hit by a high explosive shell and caught fire as it crashed into its target area and burned out. In nearly every glider, casualties were taken as effective ground fire raked the aircraft before they hit the ground.

The Belgian trenches nearest the landing zone were quickly taken but machine-gun fire from the positions on the heights restricted movement until Section 8 silenced them using hand grenades. The valley and trench system on the northern hill were taken by Section 3, who also blew up three houses and

the entrance to a bunker at the bridge and captured the crews of the two bunkers there.

Forty minutes after the landing, machine-gun teams parachuted in to reinforce the bridgeheads but the bad luck continued as Nollau's half-section dropped 500 m too far to the west and fourteen men were killed and eight wounded as they dropped onto Belgian positions. (One of the wounded found himself a prisoner of the Belgians, then the British, and was eventually found and released at Dunkirk.)

As elsewhere, counterattacks against the bridgehead were weak and disorganized in the first hour after the landing, easily repulsed with air support, but this too was hampered by poor visibility and radio problems. Radio contact with 7th Airborne Division had been lost and, as a result, some of the air support failed to locate the friendly positions so that one strike by Hs-123 planes dropped bombs directly onto German positions.

Leutnant Schächter had been wounded in the head and arm while clearing the trenches at the landing area so Leutnant Meissner took command of the Sturmgruppe in his place, rallying the men so that a strong counterattack developing around 1030hrs was broken up as it assembled by small arms fire and air support. More organized counterattacks from the west and south-west at 1500hrs and 1800hrs were held back by combined artillery fire and air support.

The paras remained in position as heavy artillery fire started at around 2000hrs and it would not be until 2330hrs that elements of the 51st Engineer battalion, part of the 151st Infantry Regiment Group, arrived at the bridgehead. The paratroopers had been trying all day to get in contact with these units in the village on the other side of the canal but the enemy fire was too strong. Under cover of darkness, soldiers of Section 8 swam through the canal and led the reinforcements forward.

The shelling continued, getting heavier throughout the night as another counterattacking force massed for an assault at 0030hrs on 11 May. This attack, too, was fought off by the combined infantry and paratrooper force but it was not until nearly twenty-four hours after they landed that elements of Sturmgruppe Canne got back to the eastern side of the canal. Twenty-two men were dead, twenty-six wounded and one missing. The defenders had lost about 150 dead, fifty wounded and around 190 prisoners.

By 0730hrs sixty-two Germans had been on top of Fort Eben-Emael for nearly two hours. Two soldiers were dead, eight severely wounded. Four more had slight wounds. Oberleutnant Witzig and Feldwebel Maier's Section 2 were still missing. Cupola Sud was still firing at a reduced capacity but the blockhouses around the fort's perimeter were inactive. Leutnant Delica had been directing Stuka dive bomber missions within forty-five minutes of landing and now guided in two aircraft for resupply of much needed ammunition and water. Oberfeldwebel Wenzel was in charge and talking to Hauptman Koch by radio to relay the status of ongoing operations. Koch knew that, although the Canne

bridge was blown, the others had both been captured by 0530hrs and were being held.

Suddenly at 0830hrs, a lone glider appeared and landed near the platoon headquarters. Witzig and Feldwebel Schwarz's reserve Section 11 stepped out with just one more hour at the fort until the 4th Panzer Division was scheduled to arrive to relieve them. Thereafter, if the fort had not yet surrendered, the task would fall to them. The main task of the platoon now was to keep the Belgian defenders in the fort and to prevent them from recapturing the surface. After an initial update briefing by Wenzel, Witzig gave the order 'to blow in the fortified entrances and press the attack into the depths of the fortress, holding all captured positions until relief arrives'. Major Jottrand, still shaken by the explosions and casement damage, realized that only a few Germans were attacking the fort and ordered a counterattack to clear the top. A group of fourteen men under Lieutenant DeSloovere emerged from the woods in the north-west corner and immediately came under attack from Feldwebel Arndt. The Belgians quickly retreated. By 1030hrs a furious Major Jottrand launched two additional counter-attacks in an attempt to dislodge the Germans from the top of the fort. Both met with failure, due largely to their lack of experience using infantry weapons and tactics as all the Belgians were trained solely as artillerymen. Jottrand now began to fear a German penetration into the fort and ordered all the tunnels blocked, calling for additional artillery fire from the neighbouring forts of Pontisse and Barchon to target the top of Eben-Emael and ordering in his reserve force from the nearby town of Wonck.

Meanwhile, driving through columns of advancing German vehicles, the missing Section 2 finally arrived at Canne only to discover the bridge had been blown. Feldwebel Maier was mortally wounded trying to cross the bridge but Meir, his second in command, made it over and stole a bicycle to ride towards the fort. Evading fire from both German and Belgian attackers, he made it to the gate but could not find a way in. Fearing no one would believe his story, he grabbed a copy of Fort Eben-Emael's daily orders and linked up with Feldwebel Haugh. Then he went back to Canne to meet his section and lead them forward. He never found his section, but ended up escorting 110 Belgian prisoners he captured in the vicinity of Canne to Bergen instead.

Early in the afternoon, Witzig saw lead elements of the German 151st Infantry Regiment trying to cross the Albert Canal in rubber boats near Blockhouse 17. This was built into the side of the cliff facing the Albert Canal and contained two 60 mm anti-tank guns, machine guns and searchlights. Feldwebel Harlos was charged with its destruction but had a challenge since it was built 120 feet below the top of the fort. Tying three 50 kg charges together, he lowered them by rope on top of the blockhouse and blew them with no visible effect. The gun crews in the blockhouse would continue to fire until the next morning when lead elements of the 51st Engineer Battalion destroyed it.

Lieutenant Levaque, in charge of the Belgian reserve force of 233 men, came

under heavy fire from Ju87 Stukas as they assembled. The constant dive bombing disrupted the reserve force's movement by scattering them throughout the area – by 1600hrs, only fifteen men had reached the fort and it would be two more hours before roughly half of the original reserve was in position for the counterattack. As darkness fell, the Belgians found themselves under constant German machine-gun fire and only eight men carried through the assault, finally withdrawing back into the fort.

As darkness fell on Eben-Emael, the attackers lay exhausted in a defensive position near Witzig's glider. Incoming artillery fire and explosions kept the Belgian defenders in a state of fear. The interior of the fort was in shambles. The constant explosions cut off the power to the majority of the fort and the lack of ventilation and heat began to make work conditions unbearable. Smoke permeated every corner, reminding the defenders of their German adversaries above ground and threatening asphyxiation if the situation did not improve.

Throughout the night pioneers searched desperately for a way across to the paras in the fort. Using inflatable boats and rafts made from anything that might float, they forced their way across and at 0830hrs on 11 May Witzig was officially relieved by members of the 151st Infantry Regiment.

At 1000hrs that morning, Major Jottrand received a message from Liège that help would not come. General De Krahe, commander of the Belgian III Army Corps, signalled him that 'if the evacuation of the garrison is impossible, you are ordered to blow up the fort and all its men'. Jottrand summoned his officers and explained the situation as he knew it. Then he read Article 51 of the 'Instruction on the Defence of a Fort' which ordered that:

> The surrender of a fort is not justified unless it finds itself in one of the two following circumstances:
>
> When all defensive means of the fort and of its personnel are useless and non-reparable.
>
> When all means of subsistence of the garrison are exhausted.

In unison, the assembled council favoured surrender and agreed to the terms which they would present to the Germans. They would surrender on the conditions that the wounded would be evacuated and the garrison treated honourably as prisoners of war. At 1227hrs on 11 May, Fort Eben-Emael was officially surrendered to Colonel Melzer, commander of the 151st Infantry Regiment. Melzer told them 'I congratulate you on your courage. Someone must be defeated in war. I am sorry this must happen to you. But this is war. I must send you to Germany.' To keep the use of gliders and hollow charges secret, the Belgian prisoners of Fort Eben-Emael were kept in isolation until July 1944 at a prisoner of war camp in Fallingbostel, Germany.

For the loss of six dead and fifteen wounded, Witzig had achieved a stunning success. Several days after the platoon returned to its barracks in Hildesheim, it

was ordered to report to a special ceremony where Adolf Hitler addressed the men and presented each officer with a Ritterkreuz (Knight's Cross), Nazi Germany's highest combat decoration, and each soldier with an Iron Cross. Everyone involved was promoted one grade, except Grechza, the drunken soldier who straddled the guns. Soon afterwards, the men received orders transferring them to other units and within a few months the platoon was deactivated. The platoon remained so until early in 1941, when Hitler ordered an attack on the Greek island of Crete and the men of Sturmabteilung Koch were in demand again.

Chapter Three

'Nothing is impossible': The Glider Pilot Regiment

The British response was swift, if crude. Four days after Eben-Emael fell, the War Office announced the formation of a new force of Local Defence Volunteers to

> deal with the action of small enemy parties landed from the air . . . to help in the very earliest stage in preventing movement by enemy parties landed from the air by blocking roads . . . and by seeing that they were as completely as possible hemmed in from the moment they landed.[1]

By 7 June 1940, the weekly *War Illustrated* magazine was able to provide photographs and descriptions of German airborne forces and announce the likelihood of parachute and glider-borne attacks on Britain.

On 22 June, Prime Minister Winston Churchill sent a memo to the Chief of Staff:

> We ought to have a Corps of at least 5,000 parachute troops. I hear something is being done to form such a Corps but only on a small scale. Advantage must be taken of the summer to train these Forces who can none the less play their part meanwhile as shock troops in Home Defence. Pray let me have a Note from the War Office on the subject.[2]

Initially dismissed by many as simply another example of Churchillian folly – where, for example, were suitable aircraft to be found when the RAF was already stretched to its limit? – the idea was sound enough. Britain's army had lost heavily in terms of weapons and transport and its ability to respond to attack was limited. The use of airborne troops would allow for a rapid reaction force to support the spears and pitchforks of the Local Defence Volunteers in containing attacks before the enemy could establish an airhead.

Two days later, Major John F Rock of the Royal Engineers was summoned to the War Office and put in command of Britain's airborne forces. How, with what and where were not explained. 'It was impossible', he wrote in his diary, 'to get

any information as to policy or task'.[3] Rock's previous experience of aircraft was limited to having travelled as a passenger and he knew nothing of parachutes or gliders beyond what had appeared in the *War Illustrated* and other newspapers. Nevertheless, he approached his task with enthusiasm and soon established himself at Ringway (now Manchester Airport) under its RAF Station Commander, Group Captain L G Harvey. Assisted by Squadron Leader Louis Strange and Wing Commander Sir Nigel Norman, Rock set up the RAF Central Landing School, starting at 'Rock bottom'. The school's existence and purpose caused confusion within the bureaucracy of the War Office and not least with the mail. In the early days, a letter arrived for recruit Private Crane, addressed to the Central Sunday School, and a name change to Central Landing Establishment (CLE) brought mail addressed to the Central Laundry Establishment.[4] Whether laundry staff were ever in receipt of instructions about taking part in dangerous combat missions is not recorded.

The CLE rapidly evolved and a Development School was quickly set up to explore methods of using parachutes and containers to drop men and supplies. A Parachute School under Group Captain Newnham began the first experiments using parachute troops on 13 July 1940. Alongside these, a Glider Training Squadron was formed on 19 September using donated Kirby Kite and other sailplanes, ageing Avro 504 and Tiger Moth biplanes and civilian instructors. On 26 October, a demonstration took place using two tug and sailplane combinations and almost immediately the Ministry of Aircraft Production issued specifications for an eight-seat assault and training glider. Within four months, General Aircraft Ltd (GAL) had successfully flown the GAL48 'Hotspur' Mk I and an order was placed for 400.

On 3 December, the first parachute exercise took place with 350 paratroopers dropping on a foggy morning from four converted Whitley bombers. Only one casualty was sustained in the drop and the men set off for their objective, commandeering the car of Norway's Crown Prince Olaf on the way. By 28 February 1941, under the headline 'Not All the Parachutists Are Nazis!', *War Illustrated* was able to report on a parachute raid against Southern Italy by a force of British paratroopers. The raid, on 10 February, consisted of seven officers and thirty-one men drawn from a long line of volunteers at the Central Landing Establishment against the Monte Vulture aqueduct and was intended to disrupt water supplies to Italian operations in Albania. It was not a great success and all the raiders were captured but it proved it could be done. Despite this, by April 1941, Churchill was becoming anxious about the airborne force and especially about the glider programme, asking 'is it being seriously taken up?' So far, his glider force consisted of a single Hotspur, delivered on 6 April and in use a few days later. A demonstration on 26 April consisting of a flypast of the Hotspur and five Kirby Kites in camouflage paint followed by a planned drop of forty paratroops (of whom six failed to jump) did little to inspire him – although the newly designed airborne dagger presented to him looked good.

Meanwhile, as glider development got under way, heated debates began about who should fly them. The RAF, firm in the belief that anything above head height is their realm, argued that gliders were aircraft and therefore must be RAF controlled. The army pointed out that glider pilots would crash-land a medium-sized aircraft into enemy positions and then have to fight alongside the ground troops until help arrived. This line of argument quickly helped broker a deal in which the pilots would be soldiers but would be trained by the RAF. The first recruits to the new glider pilot force were duly recruited from the Royal Army Service Corps. Lance-Corporals Morris, Baker and Harrison, along with Driver Cooper, would become the pioneers of what would become a truly unique unit: the Glider Pilot Regiment.[5] At first, there was a carefree atmosphere – early recruits joined without even a medical check – and it drew adventurous men with a love of flying in any form, such as the sergeant who became the first to solo in a glider who had earlier flown a Messerschmitt in the Spanish Civil War.

On 21 December 1940, John Rock – by now a lieutenant-colonel – became the Commanding Officer of 1st Battalion, The Glider Pilot Regiment (GPR). By now, the laid-back, academically minded Rock had been joined by the sharply contrasting character of Major George Chatterton, a former naval cadet at Pangbourne, RAF pilot with 1 Squadron until a crash in 1935 had ended his flying career, and most recently a veteran of France with the Queen's Royal Regiment. Recruited by General Frederick Browning to act as second in command of the GPR, Chatterton brought with him two Guards sergeant-majors and a belief in firm discipline, along with an intention, in his words, to be 'quite ruthless' in enforcing army standards. It was a source of friction between the two men that would last until Rock's death in a flying accident in October 1942 but which would, as Chatterton demanded, ensure that those who stayed the course were not simply men seeking to escape the boredom of garrison life by volunteering for anything but would be, as Jim Davies, an early volunteer, put it, 'men who would put up with anything for the sake of flying'.

Chatterton, described by one of his pilots as 'a super salesman who could sell you anything', persuaded Browning that the men of the GPR would be a force of 'total soldiers' – able to not only fly their gliders into action, but to operate any weapons they carried aboard and to lead airborne troops into combat with the motto that 'nothing is impossible'. One later volunteer, Alexander Morrison, recalled Chatterton's opening address to a new group of volunteers:

> Please sit down. My name is George Chatterton and I am the Commanding Officer of the Glider Pilot Regiment. You are all volunteers and, at this moment in time, have no idea what you are letting yourselves in for! Well, the Glider Pilot Regiment is part of the Army Air Corps and will have the honour of delivering men, guns, vehicles and even tanks right into the heart of the forthcoming battle . . . This, then, will be your job and in it, you will be unique because you will not

> only have to be a top rate pilot, but also able to fight efficiently after landing. You will be taught to fly whilst, at the same time, master every type of weapon and vehicle. Associated with your training you must develop the highest form of personal discipline . . . you will find that the next few weeks will tax your strength and moral courage to the limit.[7]

Volunteers for the new force came forward in their thousands but were weeded out by an RAF selection board using the same standards as would be applied to RAF aircrews and by a rigorous training schedule that would eventually see just one in twenty-five volunteers achieve their 'wings'. Conditions at the GPR depot have been described by veterans as 'hostile' and some wondered whether they had mistakenly been sent to a penal unit. 'You had to be fanatical to stay there', recalled John Potts. 'One chap showed up on parade with a small cut on his face and was put on a charge for being "idle while shaving"!'[8] Legend has it that an entire parade jumped to attention when a dog barked, but it created a strong sense of confidence in the trainees and those who didn't like it were free to leave. Chatterton genuinely believed that such a regime was vital to developing the skills and discipline needed to carry out their tasks and, when the RAF appeared to be sneering at his trainees, he visited the station, flying in by Tiger Moth, to land 'in the most split arsed manner' and emerge in parade uniform, swagger stick under his arm and RAF wings prominently displayed on his tunic.

It had been decided that the large gliders planned for use would need two pilots – the first pilot, with the rank of at least staff sergeant, would be responsible for takeoff and landing, the second, a sergeant or above, whilst on tow or if the first were hit. After graduation from the Tilshead depot, first pilot trainees would spend eight weeks at an Elementary Flight Training School on Tiger Moth biplanes, followed by a further eight weeks at Glider Training School learning to fly Hotspurs. This would then be followed by a further four weeks conversion course to the new Horsa glider coming into service throughout 1941. Second pilots would undergo a shorter course of four weeks at Elementary Flight Training School and three to four at Glider Training School. Gradually, the discipline and high standards paid off and RAF disdain of the 'pongoes' in their midst and the equal Army distrust of the 'brylcream boys' began to fade. Glider pilots would be entirely dependent on their RAF tug pilots and close working relationships began to develop between the two services.

As the GPR grew, so too did its glider force. Plans had specified that they should be all wooden aircraft capable of being built by coach builders and furniture manufacturers to avoid putting strain on fighter production. Hotspurs and the new, larger, Horsa assault gliders were quick to build and by now even the huge tank-carrying Hamilcars were being delivered. Stockpiles grew to the point where production had to be stopped in 1942 by the Prime Minister who did not want 'a lot of these things standing around in the rain and spoiling'. It was time to find a use for them.

Operation Freshman – the attack on the Norsk Hydro-Electric Plant, Norway, 19 November 1942

In April 1940, the Germans had occupied Norway and seized the Norsk Hydro Electric Company's heavy water plant at Vermork in Southern Norway. Deuterium Oxide (D_2O or 'heavy water') was a vital component in the atomic research programme and, in 1942, it was decided that the plant must be destroyed. The plant itself was a fortress-like factory sited on a shelf of rock several hundred feet up the side of a cliff, surrounded by heavily forested mountains rising to over 6,000 feet. Bombers had failed to cause more than slight damage and so the plan for Operation Freshman called for a glider-borne force of men trained to identify and destroy the heavy water stock to land, meet up with the Norwegian resistance and attack the plant before escaping in civilian clothes to neutral Sweden, just over ninety miles away.

The Glider Pilot Regiment's first operation would test it to the limit. It required a 400 mile tow to the target, followed by a landing in mountainous terrain at night. On landing, each man would have to carry around 80 lb of equipment through three feet of snow to the objective. So great were the hazards that objections were raised to the plan by Special Operations, who described it as 'ill-conceived and susceptible to too many failures at too many stages'. Colonel John Wilson, head of the Norwegian Section of the Special Operations Executive, later wrote that

> of all countries, Norway is the least suitable for glider operations. Its landing grounds are too few, its mountains thickly clustered, precipitous and angry. The four hundred mile tow proposed was far longer than any ever attempted, even in daylight. The success of the operation demanded exceptionally favourable weather on the Hardanger Plateau, where in winter the weather was seldom favourable and hardly ever predictable.

Nevertheless, thirty volunteer sappers from the Royal Engineers under 20-year-old Lieutenant David Methven were gathered together and split into two teams of fifteen men each. Only one team would be needed to complete the task, but both would be sent to increase the chances of success. Two Horsas, one piloted by GPR pilots Staff Sergeant Malcolm Strathdee and Sergeant Peter Doig, the other by Pilot Officers Norman Davies and Herbert Fraser of the Royal Australian Air Force, would be towed by Halifax bombers to the Norwegian coast where they would be released at 10,000 feet and glide to a point alongside Mossvatn Lake, fifteen miles west of their target. They would be guided to the landing zone (LZ) by Norwegian resistance workers using the new 'Eureka' beacon, which would act as a homing device to guide them on to the 700 yard strip of flat ground selected for them.

After repeated delays due to bad weather and problems with their aircraft, the decision to go was made on 19 November, despite reports that poor weather was still affecting the LZ. At around 1745hrs, Halifax 'A-Able', towing Strathdee and Doig took off from Skitten, followed twenty minutes later by 'B-Baker' with the RAAF-crewed Horsa on the start of what was expected to be a five and a half hour journey. As they lifted off the ground, the glider landing gear was jettisoned to cut down on drag but still both bombers would need to fly at nearly full throttle to maintain height across the North Sea and fuel restrictions meant that the combinations would have to fly straight through any cloud or turbulence.

At 2341hrs, the Operations Room at Wick in Scotland picked up a signal from B-Baker asking for a course to return to base. The pilot, Canadian Arthur Parkinson, had been unable to locate the Hardanger Plateau and had begun to turn back with the glider still on tow (in fact, he had passed directly over the Norwegian group but the Eureka's battery had failed). Radio Direction Finding (RDF) plots gave his location as over the North Sea. Just before midnight, Squadron Leader Wilkinson, piloting A-Able, reported that his glider had been released in the sea but the RDF showed them to be over southern Norway, though off-course. At 0151hrs on 20 November, Halifax A-Able, flying now on its reserve tanks, reached base. Nothing more was heard from B-Baker.

At the end of the war, investigations into the fate of the Freshman teams found that A-Able's 'Rebecca' receiver, intended to pick up 'Eureka's' signals, had failed and the combination had flown on map reading alone. Heavy cloud cover had meant they were unable to identify the LZ and soon both Halifax and Horsa began to ice up, losing height and bringing increased risk that they would hit mountain peaks. The frozen tow rope snapped and Strathdee and Doig tried to bring the glider down near Fylgejedal but crashed, killing both men and six of their passengers. Four more were taken prisoner and either shot or poisoned by their captors on the night of 23/24 November, their bodies thrown into the sea and never recovered. The remaining five were shot without trial in January 1943 in accordance with Hitler's infamous *Kommandobefel* (Commando Order) of October 1942, which decreed that all Commando troops were to be executed immediately.

B-Baker, it was found, crashed into a mountain at Hestadfjell at around 2245hrs, killing all on board. Its glider crashed some distance away, killing three. The remainder were captured and executed within a few hours at the German barracks in Bekkebo, their bodies stripped and dumped in an unmarked grave, although they were later recovered and now lie in Egenes Cemetery, Stavanger, along with their comrades from the other aircraft and a memorial to the mission. At Nuremburg, two Germans were executed and a third, wanted for crimes on the Eastern Front, was handed over to the Russians for their part in the murders.

It was not a promising start for British glider operations, but as one report put it

> it must be realised that the glider pilots knowingly took on an adventure which meant great risk to their lives, and allowed only the smallest chance of escape. [The mission] would not have been undertaken at all but for the extreme importance of the objective, which justified the risk . . .

The Glider Pilot Regiment had adopted a motto that 'Nothing is Impossible' and set out to prove that with Operation Freshman – overambitious, perhaps undertaken more for political than military ends, it seemed the regiment had bitten off more than it could chew.[9] Yet worse was still to come.

Chapter Four

'The graveyard of the paratroopers': Mediterranean operations

With Operation Seelowe, the planned invasion of Britain postponed, Assault Group Koch, now expanded into 1st Battalion of the 1st Assault Regiment returned to its home station. The 7th (Airborne) and 22nd Luftlande (Airlanding) Divisions received orders to combine forces as the XI Flieger Corps with its own dedicated air transport groups and Student took over as Corps Commander. Recovering from a head wound sustained in fighting in Holland, Student had spent his days considering how his airborne forces could be employed and had concluded that a series of assaults across the islands of the central and eastern Mediterranean would allow the Germans to move ever closer to a final assault on Alexandria and the Suez Canal.

German ambitions in the Balkans at that time were limited to supporting the failing invasion of Greece by Italian troops and to securing their southern flanks and access to the Black Sea in preparation for the planned invasion of Russia, scheduled to begin on 15 May 1941. To achieve this, a plan was developed to seize control of Southern Thrace and the coast between Salonika and Alexandropolis using ground and airborne forces. In March 1941, as British imperial forces landed in Salonika to bolster the under-equipped Greeks, twenty-seven divisions of the German 12th Army under General List assembled in Romania, crossed the Danube into Bulgaria and prepared to attack the Metaxas defence line along Greece's northern border. Facing them were thirty-three Allied divisions, made up of three British, six Greek and twenty-four Yugoslavian formations, the whole supported by 200 aircraft against the Germans' 1,200. When, on 6 April, the Germans attacked, Allied forces in the north-east soon found themselves outflanked by the 12th Army's panzers and began to withdraw southwards. Like Leonidas before them, British troops fought a delaying action at the pass of Thermopylae but by 24 April they, too, were in retreat.

The capture of the Corinth Bridge, 26 April 1941

With Greece clearly about to fall, the Germans saw another Dunkirk in the making with an opportunity to trap a large number of British, Australian and

New Zealand forces by capturing the bridge spanning Corinth Canal – the main artery into the Peloponnese and the southern ports. If the Germans captured the ports north of the bridge before the evacuation was complete, the Allied forces would depend on the bridge for their very survival and its capture would effectively seal the escape route of thousands as well as enabling the tanks of the 12th Army to maintain their momentum and capture the whole of mainland Greece. A hasty plan was devised to take the Corinth Bridge using glider troops reinforced by paratroops on the same model as had proved successful the previous year in capturing the Albert Canal crossings. Three gliders, piloted by Leutnants Fulda, Brendenbeck and Mende would land on the north side of the bridge as three more flown by Leutnants Phenn, Lassen and Raschke approached from the south. On the morning of 26 April, a force of 270 Ju52 transports and six DFS 230 gliders began to take off at 0500hrs from the Greek airfield at Larissa for the two-hour flight to Corinth.

As a short but heavy bombing and strafing attack on the defenders softened up the positions around the bridge, the gliders carrying fifty-four *Fallschirmpioniere* (parachute engineers) under Leutnant Haffner were released twelve miles from their objective, swooping down to land on either side of the bridge at 0700hrs. Leutnant Phenn, aiming for a pinpoint landing, actually crashed into one of the pillars of the bridge, injuring one of his passengers, but the landing meant that, within seconds, the Germans were on the bridge.

The bridge's defenders, supported by three tanks, had prepared it for demolition but were taken by surprise by the speed of the German assault and eighty were taken prisoner as the northern group cleared through their positions. A brief firefight overwhelmed the British posts guarding the southern end and, even before they were taken, engineers had begun to search for the demolition charges. In a matter of minutes, eleven anti-aircraft positions had been taken and the bridge was in German hands. Leutenant Fulda ordered the wires and charges removed from the bridge but a lieutenant engineer refused to move them, stating that his orders were to only cut the wires to prevent their being detonated but to leave them in place in case of successful counterattack. The charges stayed put.

Recovering quickly, British and Greek troops began to counterattack and called in artillery and mortar fire on to the small force. It seemed as if the German gamble had paid off until the bridge suddenly exploded. The actual series of events remains the subject of controversy but some reports later claimed that a surviving Bofors gun crew, firing tracer rounds, had managed to close in on the charges. Leutnant Franz Phenn was among several Germans on the bridge when the Bofors hit its target. Simultaneous explosions at both ends dropped the bridge and it crashed to the canal floor far below. Although the bridge was destroyed, by 28 April a temporary structure had been put in place and German troops and vehicles poured south, taking the isthmus within just two days. The Allied forces were cut in two and the Germans were able to round up thousands

of prisoners. For the loss of just eight men at the bridge and fifty-five in the parachute attack around it, the Peloponnese had been cut off. Thousands of British and Empire troops now faced a Dunkirk-style evacuation from Kalamata and other smaller ports to the, for now, relative safety of Crete.

Operation Merkur – the invasion of Crete, 20 May 1941

For Hitler, the campaign in Greece ended when the Allied armies had been pushed off the mainland. Europe was now secure and attention could be turned to the east. 'He wanted to break off the Balkan campaign after reaching the south of Greece', Student later recalled.

> When I heard this, I flew to see Goering, and proposed a plan of capturing Crete by airborne forces alone. Goering – who was always easy to enthuse – was quick to see the possibilities of the idea, and sent me on to Hitler. I saw him on April 21. When I first explained the project, Hitler said, 'it sounds all right, but I don't think it's practicable'. But I managed to convince him in the end.[1]

Many in the High Command felt that Crete was irrelevant and, if any attack was to be made in the Mediterranean, it should be against the British base at Malta. Goering, anxious to redeem himself after the Luftwaffe failures against Britain, now argued forcefully that Cretan airbases would put RAF bombers in reach of the much needed Romanian oilfields but could equally be used by German aircraft to dominate not only the eastern Mediterranean, but potentially provide a staging post for an attack on the Suez Canal. Hitler, still impressed by the performance of the airborne troops in the west, finally agreed to issue Directive No. 28, calling for 'Operation Merkur (Mercury)' to 'occupy the island of Crete, to be prepared with the object of using Crete as an air base against Britain in the Eastern Mediterranean'. The attack would take place before the end of May, led by the Luftwaffe and paratroops with a seaborne invasion by regular forces to support them.

The plan put forward by Student was simple and dictated largely by the rough terrain in Crete itself. Gliders would arrive first to seize Maleme airfield in the west of the island and secure it for the planned delivery of airlanding troops by Ju52. More gliders would attack nearby Canea and two waves of paratroop drops in four areas along the northern coastline would push outwards from each airhead until the forces spread 'like an oilspot', as Student put it at the briefing in the Hotel Grande Bretagne in Athens. The airborne force gathered was the greatest yet. The 7th Airborne Division would be supported by an air landing of the 5th Mountain Division (the 22nd Airlanding Division, so successful alongside the paras in Holland, had been sent to Romania in preparation for the Russian invasion) and was expected to arrive in eighty gliders and 493 Ju52s

supported by fighters, bombers and Stukas – over 1,200 aircraft in all. By contrast, the seaborne invasion force was regarded as secondary and the motley collection of ferries, fishing boats, caiques and yachts made the invasion forces look, as one writer described it, 'like a reverse Dunkirk'. But that would not matter. Student was confident that by the time they arrived, Crete would have fallen. His confidence was boosted by reports that the defenders of Crete had been further weakened by sending troops to quell an insurrection that was under way in Iraq.

On Crete, General Wavell, Commander in Chief of Middle East forces, appointed Major-General 'Tiny' Freyburg, a six foot New Zealander commanding the 2nd New Zealand and the 6th Australian Divisions – both recently evacuated from Greece – to command the assortment of 28,500 British, Australian, New Zealand and Greek units on the island. Most heavy equipment had been left behind and morale was low but Wavell did what he could and sixteen light tanks of the 3rd Hussars and six infantry tanks of 2nd Royal Tank Regiment, together with forty-nine field guns and a battalion of the Leicestershire Regiment arrived on 16 May. Between the one obsolete squadron of Gladiator and Fulmar fighters and the Hurricanes of 33, 80 and 112 Squadrons, the RAF and Fleet Air Arm could produce between them just twelve serviceable aircraft with which to oppose the Luftwaffe. By 18 May, only four Hurricanes and three Gladiators remained operational and they were withdrawn to Egypt the following day. Top secret intercepts using the captured Enigma machines had alerted the British to German plans and Freyburg had now deployed his men along the coast, paying special attention to his airfields and possible landing zones.

Operation Merkur began at 0615hrs on 20 May with an hour-long attack by bombers and fighters. From Corinth, Dadion, Eleusis, Phaleron, Tangara and Topolis, Ju52s thundered into the air through clouds of choking dust that reduced visibility to a few yards and meant that each pilot needed to wait for the air to clear before starting his own takeoff run. Luftwaffe staff officers watched in frustration as their carefully planned timetable fell apart. From Tanagra, forty-eight DFS 230 gliders carrying 288 men of the 1st Assault Regiment began lifting off at 0503hrs for the two-hour flight. Twenty-six more lifted off from Megara and Eleusis and headed south. Even with the impressive air fleet available, two waves would be needed to transport the 750 glider, 5,000 airlanding and 10,000 parachute troops due to take part. Three groups would be landed during the day, Gruppe West would land and capture the airfield at Maleme and Gruppe Centre would take Canea and the Suda docks in the first wave that morning. Group East would land in the afternoon to take control of the airfield at Heraklion. Further drops to all three would extend their airheads throughout the afternoon and following day.

Gruppe West's three Glider Detachments were made up of men taken from the 1st Battalion of the Assault Regiment and scheduled to spearhead the attacks

on Maleme. The dry bed of the Tavronitis was to act as an additional landing strip for the Ju52s following later and an anti-aircraft position at the mouth of the river was the target of 108 men in fourteen gliders commanded by Oberleutnant Wulf von Plessen. The second detachment was to be commanded by Eben-Emael veteran Major Walter Koch, with 120 men in fifteen gliders. Their objective was to land near the southern slopes of Hill 107 and capture the RAF camp there. Kampftrupp Braun, the third of Group West's glider detachments, under the command of Major Franz Braun would send ninety men in nine gliders to take and hold the bridge over the River Tavronitis to allow the paratroopers under General Meindl dropping to the west to link up with the airlanding troops.

Group Centre's headquarters staff under Generalmajor Wilhelm Süssmann would land by glider south-west of Galatas, whilst its two glider detachments attacked their targets. The first, under Leutnant Alfred Genz, with ninety men in nine gliders would attack and sieze British AA positions near Mournies, south-east of Chania and the second, 150 men in fifteen gliders led by Hauptmann Gustav Altmann, would neutralize positions on the Akrotiri Peninsula north-east of Chania, and make way for Oberst Heidrich's 3rd Parachute Regiment.

From the outset, the operation began to go wrong. The 7th Airborne's commander, Süssmann, died before even reaching the island when his glider crashed onto the Greek island of Aegina at 0600hrs after it caught in the slipstream of a Heinkel He-111 and the tow rope broke. Those who did make the journey soon found the island's defences were far stronger and more effective than anticipated, with Greek and Cretan troops and irregular forces swelling the ranks to around 43,000 and all fighting back determinedly – one story told of a German paratrooper beaten to death by an old man with a walking stick as he lay stunned from a heavy landing. German paratroopers still jumped with only a knife and a pistol with weapons delivered in a separate bundle and Hans Sack, who jumped near the airfield at Maleme, recalled that once he landed he took cover and soon heard the sound of a submachine gun close by. Thinking that his comrades were attacking British troops on Hill 107, he broke cover and was hit almost immediately, learning a few minutes later that a quick-thinking British soldier had found a weapons container, removed one of the automatic weapons and was now using it to good effect against the paratroops searching for their weapons bundles. Across Crete, paratroopers were being cut down before they could even find a way to fire back.

For the slow-moving gliders, this was no Eben-Emael. Only the first gliders reached Maleme without serious opposition. The defenders of Crete were both ready for action and experienced soldiers, and effective AA and small arms fire raked the craft as they came in to land, a reporter later describing the eerie experience of finding gliders crashed with everyone on board dead before they hit the ground. Some, though, obscured by dust and smoke, reached their targets.

The AA guns around the mouth of the Tavronitis were silenced at a cost of seventeen dead, among them von Plessen, and twenty-seven wounded. The iron bridge across the riverbed was taken, although Major Braun was among those killed doing so, and glider troops cut the main Maleme–Sphakia road but Hill 107 remained firmly in the hands of the New Zealand 22nd Battalion and continued to dominate the area. Major Koch's men had captured the RAF camp but failed to reach the summit of the hill. Koch was hit in the head within minutes of landing and handed command over to Oberleutnant Sarrazin, who was killed on the hill.

Further east, Group Centre ran into heavy and accurate fire as they approached their landing and drop zones. The transports broke formation to avoid the fire and their troops became widely scattered and easily pinned down by the defenders. The second glider group, tasked with taking control of the Akrotiri area, suffered 108 casualties out of the 150 men deployed, including Hauptmann Altmann and platoon commander Oberleutnant Ebner. Two more platoon commanders, Oberleutnant Möhr and Leutnant Rümmler, were captured and remained in captivity until the end of the war.

Back in Athens, though, initial reports suggested things were going well. Only seven Ju52s had been reported lost, although many showed some signs of damage by small arms fire, and word had not yet reached them that Süssmann and Meindl (commander of Group West) were dead. Delays at the takeoff fields meant that the second wave, due to drop around Canea immediately after a Stuka attack, in fact arrived an hour late. The bombing, far from keeping the defenders' heads down, merely gave them ample warning of the drop. (Captain Evelyn Waugh, the novelist, served on Crete and, finding himself under intense Stuka attack, observed 'like all things German it is very efficient, but it goes on much too long'.[2]) The loss of only seven aircraft was misleading. Seven had been shot down but many more had been hit or crashed when landing on Crete and Adolf Strauch, due to jump in the second wave, recorded in his diary for 20 May:

> Midday and it is boiling hot. Impenetrable clouds of dust lie above the airfield. The Ju52s have come back from the mission; but not all of them . . . Before we load the weapons containers we have to first remove the dead from the damaged machines. The aircrew do not say very much . . . the fighter planes which should be escorting us and which should beat down the enemy opposition when we drop pass us – flying back from Crete. Bad organization somewhere.[3]

At sea, the motley flotilla carrying two battalions of the Alpine troops along with elements of the 7th Airborne and their heavy weapons had been intercepted by the Royal Navy. The little boats were simply run down and the larger craft easy victims for the navy's guns, despite strenuous efforts by the Luftwaffe to

provide air support. Only fifty-two men of the two Alpine battalions were to reach the fighting in Crete. In seven days of fighting, the 493 transport planes had been reduced to just 74 undamaged machines. Over half had been lost. More than half of Crete's 43,000 defenders escaped on naval ships, leaving behind a victorious but badly shaken enemy. Of the 22,000 German troops committed to Crete, an initial report claimed 1,915 officers and men killed, 1,632 wounded and a further 1,759 missing. Later estimates would claim up to 6,000 fatalities alone, nearly one-third of the attacking force. Crete, Churchill observed, had shattered 'the spearhead of the German lance'.

Crete, the island where Daedalus and Icarus had first taken to the skies, would clip the wings of the German airborne. Ironically, though, it would also spark enthusiasm among Allied advocates of airborne forces. Colonel Bonner Fellers, American Military Attache in Egypt, produced a 258-page report in which he could barely contain his excitement:

> The drama of Crete marks an epic in warfare. The concept of the operation was highly imaginative, daringly new. Combat elements drawn from Central Europe moved with precision into funnel shaped Greece. Here they reformed, took shape as a balanced force, were given wings. The operation had the movement, rhythm, harmony of a master's organ composition. On 20 May and succeeding days, this force soared through space; its elements broke over Crete in thundering crescendos – all stops out. For the first time in history, airborne troops, supplied and supported by air, landed in the face of an enemy, defeated him.[4]

But in assaulting Crete, as historian Milton Dank later put it, 'Hitler had skilfully opened a Pandora's box, and inside a genie was being born that would later grip him by the throat.'

Many still believe that Crete, the 'graveyard of the Fallschirmjager', so shocked Hitler that he refused to consider future airborne operations. Certainly, two months later, he rejected Student's plan to take Cyprus, telling him 'the day of the parachutist is over. The Parachute arm is a surprise weapon and without the element of surprise there can be no future for airborne forces' but in a postwar appraisal of German airborne operations for the American Office of the Chief of Military History, Generalfeldmarschall (Field Marshal) Albert Kesselring, commander of the German Second Air Force during the Netherlands campaign, commented that

> the airborne operation against Crete resulted in very serious losses which in percentage greatly exceeded those sustained by the Germans in previous World War II campaigns. The parachute troops were particularly affected. Since everything Germany possessed in the way

> of parachute troops had been committed in the attack on Crete and had been reduced in that campaign to about one-third of their original strength, too few qualified troops remained to carry out large-scale airborne operations at the beginning of the Russian campaign. Air transportation was also insufficient for future operations. Furthermore, the German High Command had begun to doubt whether such operations would continue to pay – the Crete success had cost too much. The parachute troops themselves, however, recovered from the shock. Their rehabilitation was undertaken and lessons were drawn from the experience, so that a year later a similar undertaking against the island of Malta was energetically prepared.[5]

The invasion of Malta, 1942

By 21 April 1942, RAF aircraft of 69 Squadron had photographed glider strips in preparation at Gerbini in Sicily and Reinhard Hoffmann, serving in Russia with FJR-2 recalled that around this time his unit had been pulled out of the line. 'We all believed that we were being pulled out in order to be trained for new Para drops. According to rumour we would be attacking either Malta or Gibraltar . . .'[6] After moving from location to location, Hoffmann found himself still in Russia but the rumours of an operation against Malta were true. Colonel Freiherr von der Heydte, an outstanding field commander of German parachute troops, authored part of the same US appraisal and reported that

> in connection with the projected paratroop operation against Malta in 1942, six hours before the parachute jump, a battalion under my command was supposed to land by means of dive-gliders among the British antiaircraft positions on the south coast of the island and to eliminate the British ground defence. Over a period of months the Malta operation was prepared down to the smallest detail, and during that time the parachute troops practiced on mock-ups of these positions.[7]

Commenting on the problems of field communications, he noted that

> for the projected Malta operation of one parachute battalion, the engineering firm of Siemens-Halske supplied a portable radio set for maintaining contact with the base. It had a definite range of 180 miles, could be operated without interruption for six hours, and could easily be carried by one man.

The operation was never launched, not because of a lack of faith in airborne operations, but because men like Kesselring firmly believed

> airborne operations must always aim at surprise, which has become increasingly difficult but not impossible to achieve. Detection devices, for example radar equipment, can pick up air formations at a great distance and assure prompt countermeasures. Flights at very low altitude, such as were planned for the attack against Malta, are difficult to detect by means of such equipment . . . At this point, however, Hitler himself lost confidence in operations of this nature. He had come to the conclusion that only airborne operations which came as a complete surprise could lead to success. After the airborne operations against Holland and Crete, he believed surprise attacks to be impossible and maintained that the day of successful airborne operations were over. The fact that the Cretan operations came so close to defeat strengthened his opinion. Moreover, the Malta operation would have to be prepared in Italy and launched from there. Prior experience with the Italians had proved that the enemy would be apprised in advance regarding every single detail of the preparations, so that even a partial surprise was impossible. Since Hitler had no confidence at all in the combat value of the troops, which with the exception of the German parachute troops were to be of Italian origin exclusively, he did not believe the undertaking could be successful and abandoned its execution. The special circumstances prevailing at that time may have justified this particular decision, but the basic attitude in regard to airborne operations later turned out to be wrong . . .[8]

Nevertheless, the use of airborne troops for small-scale operations was still obvious and North Africa seemed the perfect place to use them.

Special operations in Tunisia, December 1942

Hauptman Fritz Von Koenen of the 13th Brandenburgers – the son of a farmer in South-West Africa, spoke fluent English and was already an experienced operative against the British in North Africa when, late in 1942, at Buerat, two hundred kilometres from Tripoli, he was briefed by Colonel Bayerlein on a special mission. Marked on a map were three blue crosses behind the enemy lines: three bridges over rivers and wadis at Tebessa, Gafsa and Tozeur on the railway line between Pray and Algiers. The railway was a vital link in the Allied supply lines and alongside it lay telephone and telegraph wires carrying all signals traffic between the front and the headquarters staff. If these could be cut, the Allies would be out of touch with their rear areas and their current offensive would stall.

Von Koenen's company were flown from Naples into the coastal town of Hammamet where they settled into a comfortable villa amongst the orange groves and lemon trees to plan the operation that would see them travel to their

targets by glider and, after destroying them, make their way across the desert with the aid of Arab guides to the nearest friendly base. At midnight on 26 December, the mission got under way.

Three DFS 230s towed by Ju52s left Bizerta that night. Von Koenen sat directly behind his pilot, Unteroffizier Heinzel. Behind him was his trusted company sergeant-major, Hans Neumann, veteran of many missions with his captain. Next was interpreter Reginald Dade and behind him Sergeant Sloka and five more men. Between their feet lay their weapons and explosives. In the following gliders sat more of his men and their Arab guides. After flying a course over Cap Bon, the group crossed the bay south towards Sousse and Sfax and then over Gulf of Gabes to the west. During the flight, they met with a squadron of Ju88s and one Ju52 became disorientated and followed them by mistake, finally putting down to the north of Sfax when he realized his error and that it was too late to catch up.

The plan called for the gliders to release at around 2,500 m and use desert thermals to glide for the remaining seventy kilometres to the target. As they approached, at around 0200hrs, von Koenen could see the moonlight reflecting off the railway lines and the simple arc of the 300 m long bridge at Wadi el Kbir. At last the pilot put the glider down, its landing skids wrapped in barbed wire to shorten its landing run. The second glider landed alongside and it was only then that they realized the third had gone missing. Unloading the explosives, von Koenen and Neumann went forward to reconnoitre. Far behind the lines, the French garrison saw little reason to be on guard. Instead, they sat in the small station building of Sidi bou Baker.

Neumann then directed the demolition of the bridge. Two 3 kg charges of explosives to cut the railway lines, two more of 70 kg each in the widest part of the central pillar of the bridge. One man cut down the telegraph wires with an axe and narrowly avoided falling when the pole suddenly began to topple. Everything was going to plan until they realized that the fuses for the explosives were being carried on the missing glider. Neumann decided to improvise using cartridges but these gave, at best, just sixty seconds to get clear and each one had to be set off at the same time. At a signal to indicate the first was lit, Sloka set the fuse for the pillar charge and jumped from the bridge into the Wadi, a drop of around five metres, twisting his ankle in the fall. Neumann grabbed him and pulled him clear just as the bridge exploded.

As the dust began to settle, von Koenen ordered the team back to their rendezvous around the gliders. As they reached them, they found two men missing. Sloka went to look for them but whilst he was away, the group began to withdraw, heading off into the desert with their guides. Near dawn, the group lay up in a small wadi near Djebel bou Ramli and near noon, sentries saw Arabs approaching. The interpreter went to meet them and found instead one of the missing men. Brought up in Palestine, he had been able to make himself understood and anti-French Arabs had offered to find his comrades. That night, in a

forced march of sixty-five kilometres, the men reached the city of Gafsa. Six days after the attack, Hannes Feldmann the other missing man arrived, well fed and riding an Arab donkey. The group eventually reached an Italian outpost and safety, their only casualty Sergeant Sloka, captured by a French patrol and shot.

A second mission, against a bridge near Kasserine, was less fortunate. One glider, flown by Unteroffizier Fissewert, was forced to make an emergency landing on the outbound leg and the crew were picked up and flown out the following day. Oberleutnant Hartig's glider crashlanded near the bridge, breaking both his ankles and seriously injuring two of his passengers. The attack went through but Hartig and the injured were left at the crash site and were taken prisoner. The fate of the third glider was never established.

The final bridge was destroyed by a mission by truck on 10 January. By now, the British had decided to put a stop to Brandenburger activity and launched an assault from a submarine against von Koenen's Hammamet base. It failed after a running battle over eight days. Von Koenen's men, with their Arab allies, fought on until the Germans withdrew from North Africa.

Operation 'Husky' – the invasion of Sicily, 1943

Whilst German commanders saw Crete as a disaster, the Allies saw the potential of large-scale airborne assault. Unfortunately, by the end of 1942, the Allied airborne divisions were still experiencing difficulties in recruiting, training and equipping their men. The official history of the 6th Airborne records that, by the beginning of 1943,

> 132 (jeeps) had not yet come to hand. They 'were reported to be standing on a quayside waiting to be delivered, but it could not be discovered on which side of the Atlantic this quayside was'. There were too few six-pounder anti-tank and 20mm Hispano guns, and there were no reserves for the Tetrach tank designed to be carried by the Hamilcar gliders . . . As with men and equipment, so too with aircraft. . . . Only half an Air Landing Brigade could be carried at one time, and no tugs capable of towing a fully loaded Horsa any length of distance had yet made their appearance.[9]

Nevertheless, Allied planners had by now decided that the first blow against occupied Europe should be led by an airborne assault.

Operation 'Husky', the invasion of Sicily, was scheduled for the summer of 1943. Montgomery had argued for a joint US/British force under his command to undertake the task but his arch rival, Patton, had decreed otherwise. Feeling he had not been supported strongly enough by Eisenhower, Patton later wrote that 'Ike is more British than the British and is putty in their hands . . . God damn all British and so-called Americans'. Montgomery was not surprised when, on 7

May, he was told at a briefing at the Hotel St Georges in Algiers that there would now be two invasions, one British, one American. Later, he cornered Eisenhower's Chief of Staff in the lavatory to argue that the two armies must land side by side to give cohesion to the assault. In view of what was to come, it was a highly appropriate venue. Browning had by now left his command of the British 1st Airborne to become Eisenhower's senior airborne adviser, his place taken by the energetic 'Hoppy' Hopkinson, a prewar amateur pilot and gliding enthusiast eager to prove his theories of gliderborne warfare. With Operation Husky under way, Hopkinson went to Montgomery to plead for a mass landing of his entire Air Landing Brigade to precede his divisional attack. Operation 'Ladbrooke', as this phase became known, would be led by Brigadier 'Pip' Hicks and would land outside Syracuse to capture and hold the important Ponte Grande bridge over the Anapo River until elements of the seaborne force reached them.

Montgomery agreed and Hopkinson returned to his headquarters a happy man – seemingly unconcerned that there was not one British glider available in the whole of North Africa to carry out the task. Both George Chatterton and his RAF colleague Nigel Norman had been summoned to a briefing on the upcoming operation but Norman had been killed when the engines of the Hudson he was travelling in failed soon after takeoff in the UK. Chatterton, without his friend's support, listened with dismay as the plan was put to him. Not least of the problems, he argued, was finding the aircraft in the first place. Hopkinson dismissed his concerns with the airy comment that 'the US air force are going to supply tugs and gliders'. For Chatterton, it was the final straw. A night landing in unknown terrain was bad enough, but doing it in a glider that the pilots had never even seen before was a recipe for disaster and he said so but Hopkinson was not one to accept criticism of his plan.

> Now look here, Colonel Chatterton, I'm going to leave you for half an hour and in that time you can study the photographs [of the LZs in Sicily]. If, at the end of that time, you still feel that this is too difficult for you, you can consider yourself relieved of your command.

Chatterton was aware that, technically, Hopkinson did not have the power to carry out his threat but that he could make life every difficult for him. Nothing he saw in the photographs encouraged him and his belief that the operation would be deadly for his crews grew but he knew that to refuse would simply mean that someone else would be placed in charge of the glider landings. There was no choice. When Hopkinson returned he said nothing but the general's mood changed dramatically. As Chatterton wrote later, 'he was like a little boy. He was *so* pleased.'[10]

With three months to prepare, Chatterton sent some of his men to collect the American Waco CG-4A gliders they would be flying into action. Arriving at

the windswept airfield of Oran, the pilots found their aircraft – in crates. With only a manual and one American corporal to guide them, they began work building their planes. Chatterton, meanwhile, had been wrestling with the problems of the proposed landing zones. The Wacos were smaller than the Horsa, capable of carrying eighteen men to the Horsa's twenty-eight. Crucially, though, it could carry a jeep *or* an anti-tank gun – but not both. The assumption was that two gliders would land side by side and pair up their loads. In practice, it worked – but only in practice. In real operations, Chatterton decided, the risk of either being lost was too great. Horsas would be needed but immediately he hit the next problem. Space for the gliders could not be made on the supply convoys from the UK. The only option was to fly.

Operation Beggar/Turkey Buzzard – ferry operations to North Africa, June/July 1943

From RAF Portreath in Cornwall to the US base at Sale in North Africa – the shortest possible route – would mean a flight of 1,350 miles over open sea, then another 1,000 across the desert to Tunisia. It would mean flying for ten hours straight, at a height of around 500 feet across the Bay of Biscay and within a hundred miles of German fighter bases on the French coast. It was generally regarded as impossible until 'Freshman' survivor Squadron Leader Wilkinson carried out experiments around the UK, flying his aircraft and crew to the limits of their endurance to prove that a tow was possible over the distances required (later that summer, RAF Squadron Leaders R G Seys and F M Gobeil would complete Operation 'Voodoo' – a transatlantic tow of 3,500 miles – in a Waco glider during an epic twenty-eight-hour flight). Operation 'Beggar' (also referred to as 'Turkey Buzzard') could begin.

In April, 1943, the German Afrika Korps were being supplied in part by glider operations from their southern European bases. The problem of towing the huge Me321 had been resolved in part by simply adding engines to a number of them to create the Me323 cargo plane. The glider/tow combinations and the lumbering 'Gigants' formed a valuable, but vulnerable, link in the supply chain. On 22 April, Allied fighters had come across one such flight and destroyed sixteen planes in a single day. As they prepared for the long flight, the crews chosen to ferry the Horsas to North Africa heard the news and were now all too aware of the risks involved.

The first flights of Operation 'Beggar' began on 1 June but bad weather forced the combination back. Two days later, four more took off. Two reached Sale that afternoon, one returned because of weather and the last ditched in the sea when its tow rope broke. The crew, Major Alistair Cooper, Staff Sergeant Dennis Hall and Sergeant Anthony 'Harry' Antopoulos spent ten hours sitting miserably on top of the floating glider before being picked up by a Royal Navy frigate. Two weeks later, Hall and Antopoulos were again en route for North Africa, this time

with Staff Sergeant Conway, when two Focke-Wulf Condors on patrol attacked their combination. Conway opened fire through a porthole with his rifle. 'We took evasive action', Antonoupolos later recalled,

> following the tug through some very steep turns. Finally, the towplane pilot spoke over the intercom and said, 'It's no good, Would you please pull off?' I pulled the rope release lever and the Halifax quickly climbed into the clouds and disappeared. One Focke-Wulf was just below me, and I dove at him. I don't know what was in my mind, but I thought 'I'll get this bastard'. It must have worried him because he stopped firing, and at the last second we both turned away. There was no problem landing – I was the greatest ditcher of all time and had written the definitive report on how to do it.[11]

It would be eleven days before the three men were picked up by a fishing boat off Spain and returned to England. Sympathetic colleagues encouraged Antonoupolos to 'keep trying, Harry, you'll make North Africa yet!'

By the end of June, twenty-five Horsas had been delivered to Sale and two more arrived on 7 July, just two days before the invasion was due to begin. A further 1,000 miles across the desert and mountains added to the losses but steady progress was being made on the 346 crated gliders delivered by the Americans to North Africa by ship. Enough would be ready to complete the mission.

At their desert base, Chatterton and his men had been joined by a few American glider pilots who had originally set out by ship for Australia and had been turned north only a day's sailing away from port, heading instead to India and eventually North Africa. Now on 'detached service' with the British, Flight Officer Bob Wilson was among those who found their names on the list of volunteers. Chatterton 'gathered us together and thanked us for volunteering for the invasion of Sicily. That's about as close to being scared to death as I have ever felt . . . we were issued red berets and Sten guns, which we had never fired before'. Chatterton made a point of introducing the men to the visiting Montgomery and 'the general fired a salute at us. That made me feel good.'[12]

Together, the pilots underwent flying training in conditions that were far from ideal. By the eve of the operation, Chatterton reckoned his men had an average of just two hours flying time in the Waco and no operational experience at all. The mood was not improved by their living conditions in a former POW camp or by the loads they saw being placed aboard their aircraft. Bob Wilson watched a trailer being loaded and looked under the cover. 'It really gave me a shock; it was material for marking graves – canvas bags, tags, and wooden crosses. Somebody already knew that we would not all be coming back.'[13] Worse still, Chatterton was shown tow ropes where black insulating tape had been wound around them. Peeling this off, he found that the intercom wires between

the glider and its towplane had been cut – an Italian-American mechanic was later blamed.

Invasion of Sicily phase one: Operation Ladbrooke, 9/10 July 1943

The night of 9 July saw winds gusting up to forty-five miles per hour across the North African airfields where 136 Wacos and eight Horsas stood waiting to take off. Six Horsas were to land near the Ponte Grande bridge and two would carry General Hopkinson and his staff, along with seven jeeps and six six-pounder anti-tank guns. Twenty-eight Americans had volunteered to join the British effort, knowing that their allies had, at best, just five hours experience and only one at night. Wing Commander Peter May took time to seek out Colonel Chatterton just before takeoff. He had admired Chatterton's suede boots and wanted to make sure that they would go to 'a good owner' in the event of anything happening to him. 'Of course,' he was told, 'just ask my batman. They're yours.' At 1842hrs, the first combination took off, followed at one-minute intervals by the rest of the fleet, a steady stream of aircraft thundering into the sky until the last lifted off at 2020hrs. Like their German counterparts before them, the pilots soon ran into difficulties in the dusty conditions. 'Andy' Andrews wrote later that the 'first part of takeoff was in a sandstorm with zero visibility. We were dragged through this dirty yellow wall, mesmerised by the short length of towrope we could see.'[14]

At Malta, searchlights acted as a beacon to guide the flights to their rendezvous over the island. Flying low to avoid German radar, Chatterton remembered seeing the clifftops of Malta pass by at the same height as his aircraft. Breaking through a patch of cloud, he found himself flying alongside his tow, a potentially lethal position since the rope could easily snag either plane. Already some combinations had encountered similar problems and around 5 per cent of the attacking force failed to reach the Malta RV. Ahead, on Sicily, the garrison had spent the day on an anti-invasion exercise but had been stood down for the night. Weather conditions were not considered suitable for an airborne attack.

Approaching the island, the inexperience of both tug and glider pilots began to show. Gliders frequently found themselves in the same position as Chatterton – flying alongside their tugs and in great danger of collision. Aircraft jostled for position as the first flight neared the coast. Despite very specific instructions – the aircraft would not be expected to approach too close to anti-aircraft fire and so gliders were to be released 3,000 yards from the shore at a height of 5,000 feet for the Horsas and 1,900 for the Wacos intended for LZ 1 and 1,400 for those headed for LZ 2 – someone (it was never established who) in the US 51st Air Transport Wing made the decision to release them all at 1,800 feet. This would give the lowest gliders a theoretical extra two miles of range but also allowed the tugs to release even earlier.

The first seven gliders approached the coast but, as they crossed it, the Italian defenders opened up with every weapon to hand. The fire was wild and erratic but looked impressive. Later, Wing Commander May reported to the subsequent inquiry that not a single American tug plane sustained any significant damage and that there had been no AA fire at all within thousands of yards of the planned release point. Nevertheless, the unnerved pilots of the unarmoured, vulnerable tow aircraft were panicked by the sight of tracer rounds rushing into the sky. Some turned and fled, their gliders still on tow. Some dived to just 300 feet and released so that their gliders struggled to make landfall as others crashed down upon them. With communication with their tugs either lost or sabotaged, some glider pilots released without orders. The plan called for the gliders to release about two miles offshore but the frightened tug pilots cut them loose two or even three times that distance, with no hope of reaching the island. The gliders descended much more quickly than their pilots expected – the rates, and therefore the release point, had been based on their performance in training over the hot desert where thermals provided lift. Now, at night and over water, they were falling too fast.

Chatterton later wrote that 'the point of release, 3,000 yards from shore, transformed what, from a nearer point and in favourable weather would have been difficult enough, into flying on to a mantelpiece which one could not see'.[15] As his glider, carrying Brigadier Hicks and his staff, approached the shore Chatterton's co-pilot read out their height as they descended '300 . . . 200 . . . Hell! Look out sir, a cliff!' Chatterton pulled back on the joystick trying to bring the glider into a climbing turn to reach a small island nearby. As he did, machine-gun fire from positions on the cliff top blasted off part of his wing. The glider stalled and hit the sea. As the crew and passengers climbed on to the top of the slowly sinking aircraft, Brigadier Hicks turned to his brigade-major muttering 'all is not well, Bill'.[16]

As they lay on their glider, Chatterton and Hicks could see other gliders passing overhead and, with fire still being directed at them from the cliff tops, they decided to try to swim for shore. As they struggled through the sea, a voice was heard calling for Hicks to get down. 'I can't' came the exasperated reply, 'my ruddy Mae West's blown itself up too much. I can't get down!' Bobbing along 'proud and English like the bowsprit of Nelson's Victory, and in the half-light, just as grotesque', Hicks finally reached shore.[17] The humour of the situation evaporated as a Wellington bomber, ablaze from nose to tail, hit the sea behind them. Chatterton thought the fire reminded him of the brandy burning on a Christmas pudding. Laying up in the rocky shoreline, they soon met up with a boatload of Special Forces troops and joined them as infantry in an attack on the gun positions above them. Chatterton would later describe his contribution to the invasion of Sicily as 'wearing an Italian topee, armed with a Service rifle, I mounted guard over 200 or so Italian prisoners'.

Elsewhere, the glider carrying General Hopkinson had also ditched. A passing

destroyer spotted him clinging to the wreckage and picked him up. The ship's captain, Lord Ashbourne, had been in the same boat crew as Hopkinson at Cambridge and welcomed him aboard. 'We wrung out his clothes, gave him a plate of eggs and bacon and then sent him off to catch up with the rest of his soldiers.' Dressed in the only clothes that could be found to fit – the second-best uniform of one of the ship's Maltese stewards – the general was not a happy man. Out at sea, other ditched glider pilots were also beginning the long swim to shore. Sergeant 'Andy' Andrews, though, had not ditched. He was about to but, warning his passenger, Colonel 'Honker' Henniker to make ready, he was told in no uncertain tone not to 'be a damn fool. We have to get on land. We can't get wet!'[18] Faced with such unarguable logic, Andrews turned towards a promontory where he could see a searchlight. He knew that, even if he reached it, they would land in the midst of enemy troops, but the alternative was to annoy the colonel even more. Andrews and Henniker would arrive at the bridge late the next day with a long line of prisoners and a donkey cart. Chatterton's deputy, Colonel O L 'Jonah' Jones, landed with part of the brigade headquarters on Sicily but also far from his intended landing area. Looking for something to do, he and his group of staff officers and signallers attacked a nearby coastal battery, quickly overrunning it and destroying five guns and an ammunition dump.

Such had been the chaos caused among tug pilots that gliders were landing far from their destinations. After making a smooth landing, the troops in one glider began to unload their cargo before the enemy opened fire only to be told firmly to vacate the runway by the irate RAF air traffic controllers of a Maltese airfield. Only twelve gliders towed by the RAF reached the island itself and of those, only one, a Horsa flown by Staff Sergeant D P 'Galp' Galpin, landed within sight of its objective at the Ponte Grande bridge. Galpin, carrying a platoon of the South Staffords under the command of Lieutenant Lawrence Withers, had been guided in by the light of a nearby searchlight. Nearby, another Horsa piloted by the popular Captain Denholm, crashed at high speed into the river bank killing all on board. Deciding not to wait, Withers ordered his men forward. As they dashed forward, another Horsa appeared. This one, carrying sappers and a cargo of Bangalore torpedoes to clear the wire, was riddled with machine-gun fire as it landed and disintegrated in an explosion that flung glider and body parts over hundreds of yards. Quickly briefing his little force, Withers took half his men across the river, swimming through the muddy waters to attack from the northern end, the other half assaulting from the south. They quickly formed up on the other side, still without the sentries being alerted and, as a signal flare arced into the sky, charged the bridge firing from the hip, shouting and screaming. The Italian defenders, convinced they were facing a much larger force, surrendered. Locking them up in a blockhouse, the men then severed the demolition charges. In a few minutes, twenty men had achieved the primary objective assigned to two thousand.

The following day, Chatterton's group came across Jones's and the two

decided to attack a farmhouse they believed to be held by the enemy. Instead, as they approached, they found themselves invited to lunch by its owner, an American woman married to an Italian. She and her husband had been under the assumption that the noises were part of yet another exercise but were only too happy to treat their unexpected visitors to what Chatterton would remember as

> a wonderful lunch, while all around us were the sounds of the diminishing battle, the rattle of machine guns and explosives. I don't know how many bottles of Chianti we drank that afternoon or how much spaghetti we ate, but it was a very large and very, very good lunch.[100]

As the party made ready to leave, she directed them to a nearby barn. There they found a bright red 1900 vintage fire engine of the Syracuse fire department which, sporting a six-pounder gun attached to its rear, provided their transport to the Ponte Grande.

At the briefing in North Africa, Withers had been told that two companies of the South Staffs would hold the bridge until relieved at 0730hrs. By 0800hrs, his platoon, swelled by stragglers to a force of eight officers and sixty-five other ranks, remained alone on the bridge and could see the enemy massing for a counterattack. American volunteer Flight Officer Samuel Fine had already been hit in the shoulder as he landed but now found himself part of the defensive perimeter. With one 2inch and one 3inch mortar but only a few, mostly smoke, bombs, four Bren guns and a single Gammon bomb, the defenders held off massed attacks for the next seven hours until, with just fifteen men left unwounded and the ammunition gone, the force surrendered. Fine recalled:

> Just before we surrendered, I was wounded in the neck. As the enemy was marching us away along a dirt road through some woods, a British officer suddenly appeared from behind a tree right in front of us – he was at least 150 feet away – and took a shot with a pistol at the Fascist guard on point, smacking him right between the eyes. The other guards didn't know where the shot came from and while they were scurrying around among us, I grabbed two rifles from a couple of them. I tossed one to a trooper near me and the two of us shot every Fascist we could see. The rest of our captors were huddling in the woods behind trees and bushes and meekly surrendered.[20]

The seaborne force had arrived and the bridge was secure.

Standing beside the Ponte Grande bridge soon afterwards, Chatterton looked down at the remains of Denholm's glider and noted how 'the crew and passengers had been blown forward as if down a funnel but of the pilot there was no sign . . . I stood looking at this macabre and tragic pile of bodies.' Nearby the

H N 'Andy' Andrews

In 1942 22-year-old 'Andy' Andrews volunteered for the newly formed Glider Pilot Regiment to escape the boredom of waiting for the German invasion that never came. He had served with the Royal Engineers in France but, after evacuation from Dunkirk, he found service in England unexciting. He became one of the regiment's most experienced men, one of only six to have survived all four major operations (Sicily, Normandy, Arnhem and the Rhine crossing), during which his flying skills earned him the Distinguished Flying Medal and Bar

As the war in Europe ended, Andrews was assigned to fly gliders behind tow pilots under training for operations in the Far East and narrowly avoided a serious crash during one such flight. Afterwards, according to his *Times* obituary, he 'crisply' explained to the tug pilot that it would have been a shame had he been killed on a training mission after all he had survived on operations.

After demobilization in 1946, Harold Norman Andrews returned to his engineering studies and emigrated to Canada in 1953, where he was commissioned in the Royal Canadian Engineers and rose to the rank of major. He continued flying until 1965 when a helicopter crash left him stranded in a heavy snowstorm and he decided he had pushed his luck too far.

Working from a two-room trailer in a New Westminster car park, Andrews was instrumental in developing the town's Douglas College. After his death at the age of 80 in 2000, his wife Helen, whom he met while she was serving with the WAAF at Brize Norton in 1942, and their son and daughter were invited by the college to present the Andy Andrews Award to promising students in his memory.

burnt-out remains of the sapper Horsa lay in stark contrast to the relatively intact glider Galpin had landed. By now news was reaching Chatterton of the scale of the losses – at least sixty-nine of the 137 aircraft had gone down at sea. Just forty-nine Wacos and five Horsas had reached Sicily and several more were missing. As he surveyed the scene, General Hopkinson arrived by jeep. 'Andy' Andrews recalls that the general 'appeared small and tired. As he returned our salute, I could not help interpreting the look in his eyes with his own unspoken words, "Thank God, that's over. Not many left, are there?"'[21]

Back in North Africa, tempers were running high. General Sir John Hackett, then with the reserve brigade, wrote that

> glider pilots who were recovered from the sea came back looking for tug pilots' throats to cut. I saw no option but to confine them to camp until after the American parade for the award of decorations for gallantry, by

> which time the admirable qualities always to be found in glider pilots had reasserted themselves and calm was restored.[22]

The award of medals to tug pilots who, they felt, had fled at the first shot was made all the more insulting for the glider pilots when Samuel Fine was refused any acknowledgement of his role in the defence of the Ponte Grande – despite the support of British witnesses – on the basis that glider pilots were not supposed to fight as infantry and so therefore could not qualify. He did, however, receive the promotion his British comrades recommended. Another American pilot has described how each unit was assigned a quota of awards given out on almost a lottery basis – he himself refused when asked to 'cut cards' to see who would be allowed to keep a Bronze Star award later in the war. Resentment would run deep for a long time to come.[23]

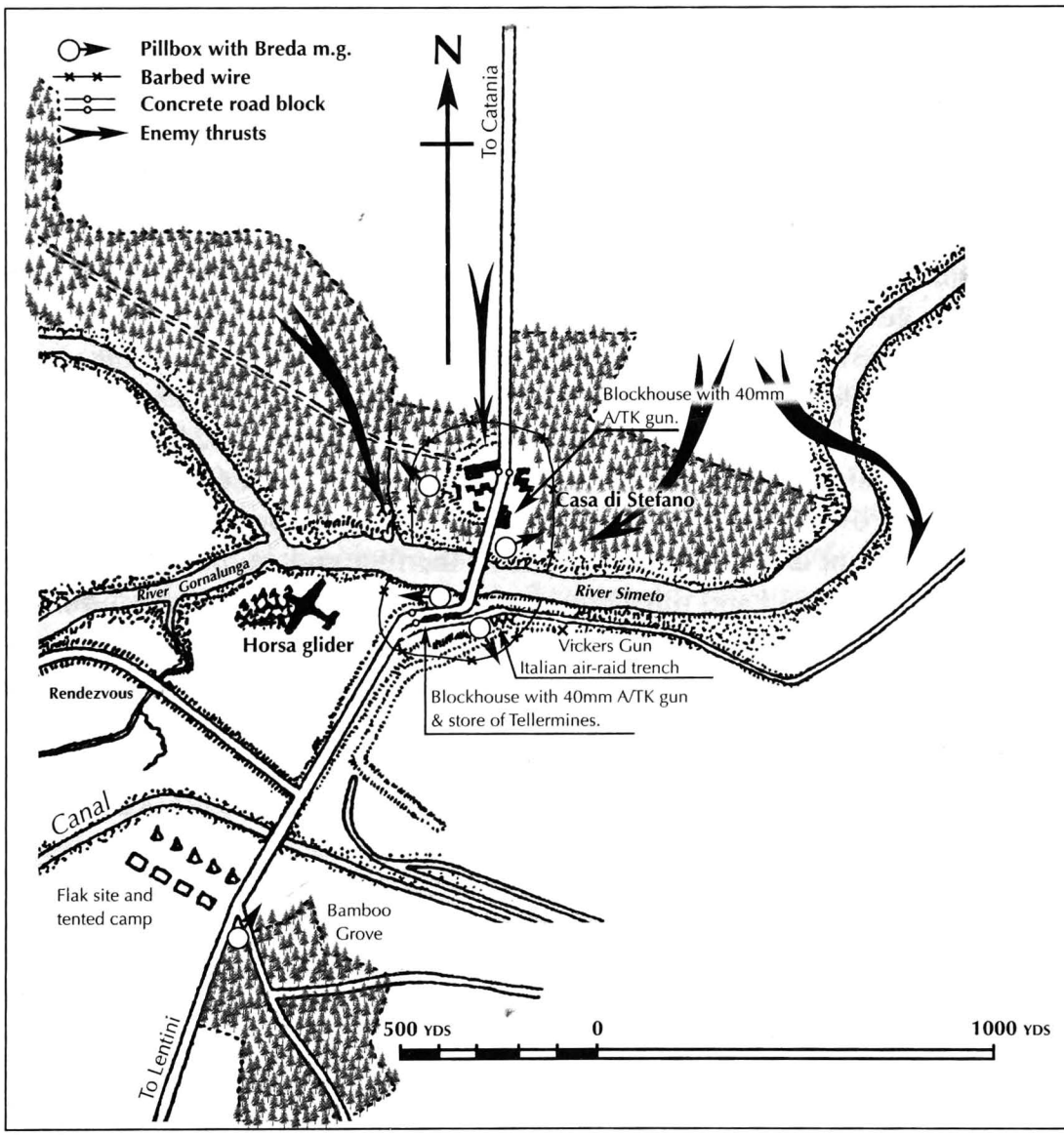
Invasion of Sicily phase two: Operation Fustian, 12/13 July 1943

Within forty-eight hours, the next stage of the invasion was under way with Operation 'Fustian'. Just as the taking of the Ponte Grande bridge 'saved the 8th Army seven days' in the capture of the port of Syracuse, taking the Primasole Bridge across the River Simeto and the Gornalunga Canal would allow tanks to head towards Catania and thus gain control of eastern Sicily. A *coup de main* attack would be made by paratroopers and airborne engineers in eight Wacos and eleven Horsas all towed by the RAF. Three days after the first wave, the next airborne element climbed into their aircraft and at 1935hrs on 12 July, C-47s of the US 51st Troop Carrier Wing began the lift followed at 2200hrs by the gliders towed by the RAF's 38 Wing. At first, all went well. The naval ships of the seaborne invasion fleet had been told of the 'Fustian' drop and of the routes and timings of the air fleet but somewhere off Cap Passero, some thirty aircraft strayed into the no-go zone established around the ships. Nervous gunners below opened up. Two aircraft were shot down immediately and another nine turned back because of damage and injuries. Six more turned back claiming they had been ordered to by their squadron commander. The firing had alerted the shore-based defenders and flak now added to the damage, another nine paratroop-carrying aircraft were shot down and three glider combinations went missing. Aboard one C47, Lieutenant-Colonel Pearson, commanding 1st Battalion of the Parachute Regiment, noticed the glow of Mount Etna below. Realizing they were off course, he jokingly asked one of his men, a former pilot, if he could fly the Dakota and was assured the man could. Moving forward, Pearson told the pilot that they had overshot the DZ.

> His co-pilot was sitting with his hands over his face crying 'We can't, we can't' 'Can't do what' I said. 'We can't go in there'. I could see quite

clearly blobs of fire. I knew what was going through his mind, it was going through mine as well, because on the ground were what I thought were burning Dakotas. I said to the pilot 'There's nothing for it old boy, we've got to do it. If your co-pilot's no good I've no hesitation in shooting him'. I pulled out my revolver. The pilot continued with his protests. So I said 'I could shoot you as well.' 'You can't do that, who'd fly the aeroplane?' I said, 'don't worry about that, I've got a bloke in the back who can fly this'. 'Yeah, but he won't know how to land it!' 'No-one has asked him to land the bloody thing – you don't think he's going to hang about to land it do you? He'll be stepping out very sharp!'[24]

Faced with the fact that none of their passengers expected to return with them to their base and that they were by now surplus to requirements, the pilots



Sicily: map of the assault on the Prima Sole bridge.

reluctantly headed back towards the DZ but dropped the paras too low and at too high a speed, causing a number of casualties as they hit the ground hard.

Scattered over a wide area, the paras began to make their way to the objective. It would take General Lathbury nearly three hours to assemble a hundred men with which to attempt to take the bridge, only to find on arrival that Captain Rann had already taken it with fifty. By 0430hrs, it was in British hands but a battle for control was still in progress as gliders began to arrive. Major Cooper, survivor of the 'Buzzard' ditching, died when his towplane was shot down at only 500 feet, crashing into the dry riverbed but four glider loads arrived in time to contribute to the battle by carrying two jeeps and three six-pounders to the small force defending the bridge against a determined counterattack. By noon, the 250 men who had by now reached the perimeter around the bridge had been pushed back as their ammunition ran out and it would not be until dawn on the 16th that tanks and infantry would finally force their way back across it.

Sicily: the airborne counterattack

Even as the Allied airborne landed, German reinforcements began arriving by air from Italy in what would be the only time when both sides used airborne landings on the same target. In the confusion, on the drop zone near the bridge, a British soldier was approached by a shadowy figure asking 'haben sie meine Schmeisser gesehen?' (Have you seen my Schmeisser?) as he searched for the weapons bundle the Germans still dropped separately. Over the next few days, paratrooper would fight paratrooper in a fierce contest for the vital bridge.

On 11 July, three *Kette* ('flights') comprising eight Gotha Go242 gliders left their base in Italy at 0630hrs and flew without the promised fighter escort to Sicily, arriving over Messina at about 0930hrs and heading for Catania. Guided in by the smoke of an earlier bombardment, the first gliders touched down as planned. As the second and third groups arrived, firing started again and most were damaged by shell fragments. More followed on the 13th whilst larger landings began around Torre di Farro between 20 and 23 July. In Italy, glider units deployed from Pomigliano and Viterbo with more deploying to the Practica di Mare base near Rome in early August and raids on these bases over the coming months would damage or destroy around 250 glider combinations. Remaining accounts suggest that as many as eighteen Me 321 Gigants, 146 Go242 and nearly 300 DFS 230 gliders were available at Mediterranean bases to units involved in resupplying Sicily but little detailed information is actually known about the scale of glider landings against the Allies during the campaign.

The invasion of Sicily, the Allied Crete, could have spelt the end of glider operations. In many ways it failed just as the German invasion had two years before and for many of the same reasons, but it had achieved its goal. The larger capacity of Allied gliders meant that heavier weapons could be available from the outset and planners could see the potential even if they could not yet exploit it.

Back in North Africa, Lieutenant-Colonel Vladimir 'Popski' Peniakoff, the eccentric but effective founder of 'Popski's Private Army' had watched gliders in operation and had decided he could make use of them. Three weeks after the Sicily operations, he approached General Hopkinson with a plan to land six gliders on a deserted plain in Calabria to operate behind enemy lines to link up with the advancing Allies later. Twelve men would be detached from the Glider Pilot Regiment and Peniakoff would learn to fly a glider himself. Having gained his wings on a somewhat abbreviated course, he set about training his men for the problems ahead by deliberately having the heavily armed jeep teams landed anywhere in a thirty-mile radius of their target in daylight and at night in readiness for any eventuality. In September, though, the plan was shelved as Popski and his men were ordered into Italy along with the seaborne force.[25]

The problems in Sicily were summed up in Staff Sergeant Galpin's laconic analysis of the operation in a comment only he, as the only man to reach his objective, could have made: 'My observations at the time were that the following points were of interest in planning future night operations . . . Landing right on top of the objective is the best recipe for success.' With fifty-seven pilots dead and hundreds of their passengers lost at sea, the belief in a precision assault by glider had taken a sharp blow. The Glider Pilot Regiment had lost other friends, too. Freshman survivor Squadron Leader Wilkinson had disappeared flying in the second wave, as had Peter May, already wearing Chatterton's boots. In the aftermath of the disaster, Chatterton used his connections with the US military to secure an urgent flight back to the UK to examine the lessons and to rebuild confidence in his gliders as the invasion of Europe grew ever closer. The disaster had shown the chaos that could ensue if gliders were released en masse over an unmarked LZ and the need to mark sites correctly. One suggestion put forward was to use a clearly marked glider as a pathfinder, with the remainder of the serial using it as the aiming point to ensure that, even if they landed off target, they would still land together. At night, he had decided, paratroopers would need to land first to set up 'T's to indicate direction and zones for landing. Initial trials were undertaken but a mass exercise nearly went badly wrong when the 'T' was set up at an angle to the actual wind direction. Some pilots landed as instructed, others from the correct direction as dictated by the wind. Fortunately, there were no serious accidents. Chatterton also considered the use of decoys. Dummy paratroopers had already been used by both sides and Chatterton now suggested dummy gliders – four foot models to be released at night when height would be difficult to judge that would fool observers about the actual landing site. The plan was dropped before any trials could be carried out.

The Sicily operation had cast doubts on the effectiveness of glider operations but, just a few weeks later, the Germans would again carry out another operation, demonstrating with devastating effectiveness how they could be used.

Operation Eiche: the rescue of Mussolini, 12 September 1943

Allied advances in North Africa and Sicily had weakened Mussolini's control of Italy and he knew it. Meeting with Hitler at Feltre in the Veneto on 17 July 1943, he had intended to discuss withdrawing his support for the war but was overawed by Hitler's fervent belief in ultimate victory and so decided against it. Events were taken out of his hands on 24 July when the Italian Fascist Grand Council met and voted to grant military powers to the King of Italy. The following day, after an interview with the king, Mussolini was arrested and Marshal Pietro Badoglio was asked to form a government. Fearing that the new regime might surrender Italy to the Allies, thus opening up southern Europe to them, Hitler decreed that he would not let 'Italy's greatest son' down in his hour of need. His 'old ally and dear friend', he ordered, had to be rescued. With plans already in place for German forces to seize power in Italy if need be, Hitler chose to gamble that, if Mussolini were to be successfully rescued, then troops loyal to him might stay on the side of the Germans.

On 26 July, a young captain named Otto Skorzeny of the Friedenthal Special Formation of the Waffen SS, was called urgently to an airfield at the edge of a lake near Lotzen in East Prussia and from there taken to a room where five other officers, all strangers, were gathered. As they made their introductions, an aide appeared and ushered them into another room. 'You will now meet the Fuhrer, gentlemen', he told them, 'He will have some questions for you. Please follow me.' Hitler chatted briefly to the men before asking 'which of you knows Italy?' When the young captain answered that he had been there several times, the others were dismissed. Within minutes, Skorzeny was entrusted with a remarkable mission: to rescue Mussolini. Though Skorzeny was in the Waffen SS, for the purposes of the mission he was subordinated to the Luftwaffe. The mission was to be codenamed Operation Eiche (Oak) and it would be carried out with the assistance of General Student.[26]

Skorzeny had only recently returned from Iran, where he and his men had parachuted in to make contact with the dissident mountain tribes and lead insurgent forces in sabotaging US and British supplies of materiel bound for the Soviet Union. Within a few months of their arrival, interest had faded and Skorzeny, who remained behind to train more recruits, was forced to recognize it as a failure. Nevertheless, he remained the rising star of German special forces. He had entered the University of Vienna on his eighteenth birthday and graduated in 1931 with an engineering degree. Although his engineering background would prove useful later in planning sabotage attacks, it would be his time in the Schlagende Verbindungen (duelling society) that would be his most important college experience. Fighting his first duel during his freshman year at university, by 1928 he had earned the coveted *Schmisse* – the 'honour scars' that would later earn him the nickname of 'Scarface' among the Americans. Skorzeny would later recall how his time in the society shaped his attitude to combat:

> My knowledge of pain, learned with the sabre, taught me not to be afraid. And, just as in duelling when you must concentrate on your enemy's cheek, so, too, in war. You cannot waste time on feinting and sidestepping. You must decide on your target and go in.[27]

When war broke out in September 1939, Skorzeny immediately volunteered for the Luftwaffe but at six foot four and 31 years old he was not accepted for flight training. Instead, he was assigned a job as a communications expert, which he hated. Five months later, he transferred to the Waffen SS, where he hoped to gain a commission. He was classified as an officer-cadet and would be commissioned if he proved himself. In operations in the Low Countries and Yugoslavia, he did so and was duly appointed as an officer. In late 1941, he was severely wounded in Russia and after recovering was summoned to Berlin in April 1943 to meet with Walter Schellenberg, head of the SD (the SS foreign intelligence service). Through his connections with senior Austrian Nazis, Skorzeny was offered the chance to take charge of the training of what would become known as Jagdverbande (Hunting Group) 502, whose members were drawn from the best men of the Reich's military units. Each man was to have basic skills in weapons from small arms to artillery, to be able to drive cars, motorcycles, boats and evén trains. They had to be expert swimmers and be able to parachute from aircraft. Many were also trained in foreign languages, such as English, Italian, Russian, and Persian. The unit was based on the techniques found described in captured British commando documents, and from a few captured British commandos who were willing to switch sides. Skorzeny was the perfect man for the job.

Skorzeny flew to Rome under the cover of acting as an aide-de-camp in the German staff. As he did so, fifty of his men flew from Berlin to Rome via the South of France as replacements joining the 1st Parachute Division already en route to Italy. Skorzeny quickly prepared lists of equipment and weapons and hand-picked the officers who would go on the mission with him. The main problem, though, was finding where Mussolini was being held.

Rumours abounded that the Duce had been flown to Spain. Others claimed he had suffered a stroke and was under guard in a medical facility in the north. Intelligence sources in Berlin even tried consulting astrologers. In Rome agents of the Security Service were told to find him at all costs. After a month of searching, Skorzeny found his first lead. A reliable report suggested he was being held on the island of Ponza off the west coast of Italy but by the time investigations had been carried out he had been moved on, this time to the island of La Maddalena off the north-east coast of Sardinia. Plans for a rescue attempt were hastily put together but before they could be carried out Mussolini was once again spirited away to a new destination.

A Red Cross seaplane was seen landing on the Lago di Bracciano and a short time later, an intercepted coded message announced 'security measures around

Gran Sasso completed'. By 8 September, Skorzeny had tracked down his quarry to the Albero-Rifugio Hotel, part of a winter ski resort 6,000 feet up Gran Sasso d'Italia, the highest peak of the Apennines mountain range, some eighty miles north-east of Rome and only accessible via a cable car that ran up the side of the mountain from the valley below.

The high altitude location perched on the side of a mountain quickly ruled out a ground attack because of the number of troops that would be needed to secure the area. An attack via the cable car could not succeed and parachute assault was out of the question. The dangers involved in dropping through thin air at such high altitudes and in attempting to land on the tiny plateau around the hotel were too great. The only possible landing-site near the hotel seemed to be a small triangular field just behind it but senior staff officers soon declared that a landing on such a small and unprepared space would cause heavy losses among the troops and that the few who survived would probably not be enough to complete the operation. Luftwaffe experts declared that the plan was 'technically impossible'.[28] Skorzeny decided that assaulting the peak by glider was now his only option.

Four days later, on 12 September 1943, the nearest glider force, based at Grosseto, sent some of its aircraft to assemble on the Pratica di Mare airfield and only then were the pilots briefed for their mission. Joining them were SS troops supported by paratroopers of Major Mors's No. 1 Company. Student drew a sharp line between the military and political aims of the mission and had decided that his men would concentrate on the former, leaving Skorzeny to go in with the paras and act as bodyguard to Mussolini once he was rescued. Shortly before the 0900hrs briefing, Skorzeny and his men kidnapped the Italian general Ferdinando Soleti in Rome. Mussolini could be killed by his captors if the assault force were delayed by the Italian guards for too long and he hoped Soleti's presence would help ensure that the guards cooperated. Soleti, hearing what was proposed, became so upset he attempted suicide but finally agreed after reassurances that the operation was not intended to cause casualties among the guards. Student was confident that not a shot would be fired.

Twelve fully manned DFS 230 gliders, equipped with special rockets in the nose to act as brakes allowing them to land on extremely short LZs were prepared for the assault. They would be flying in men from Skorzeny's Friedenthal Battalion and men of the 1st Kompanie, 1st Battalion, 7th Regiment (the Fallschirm-Lehr Battalion), under the command of Oberleutnant Georg von Berlepsch. The remainder of the battalion under the command of Major Otto-Harald Mors were to travel by road and take the nearby airfield at Aquila and the cable car station in the valley below, whilst another group of Skorzeny's men was tasked with the job of freeing the Duce's family. To fly Mussolini out after the raid, Skorzeny secured the use of a new weapon in the German arsenal, the Focke-Angelis FA 225 'Stormbird' helicopter.

That afternoon, after narrowly avoiding an Allied air attack on the base, the

gliders and their towing aircraft took off from the Practica de Mare airfield near Rome on their hour-long flight to the target. Gliders 11 and 12 never made it off the airfield – damaged during takeoff after hitting craters left by the Allied bombing raid just before H-hour.[29] Gliders 1 and 2 disappeared in dense cloud midway through the flight and separated from their tows, leaving Skorzeny in glider number 3 to take the lead. Eight gliders now remained to complete the mission. Visibility was bad as they approached the Gran Sasso and only the reconnaissance carried out by Skorzeny in the days before the attack allowed him to recognize any landmarks.

At around 1400hrs Skorzeny, looking through a hole he had cut in the skin of the lead glider, spotted the roof of the hotel. Both he and the pilot could see the triangular space planned as the LZ was not the flat ground it appeared to be from the reconnaissance photographs but a very steep hillside where a landing could be disastrous. The only other option was to crash-land on the rough but flatter ground in front of the hotel. Landing hard and taking casualties as a result, Skorzeny was one of the first out and running towards the hotel. The Italian carabinieri were everywhere, many dropping their rifles and already running away from their machine-gun posts as the Germans sprang from the gliders. As his men rushed into the hotel Skorzeny himself battered through the carabinieri with the butt of his machine gun and ran up the staircase to find Mussolini. Bursting through a door, he found him with another Italian officer.

By now the other gliders had crashed among the rocks and more SS men were streaming towards the hotel yet still not a shot had been fired. Skorzeny asked who was in command and an Italian colonel appeared, raised a glass of wine and said solemnly: 'To the victor'. Turning to Mussolini, Skorzeny introduced himself and told him 'Duce, the Fuhrer has sent me to set you free.' 'I knew my friend Adolf would not abandon me', replied Mussolini, hugging his liberator.[30] Still, not a shot. The hotel had been taken so quickly that by now gliders 6 and 7 were just coming in to land. Glider 8 made its approach shortly afterwards but crash-landed, badly injuring all those on board.

With Mussolini freed, the problem was how to get him away. The helicopter had broken down and was still at the airfield, leaving Skorzeny with three possible options for escape. The first, by road to Rome through the valley below (now in the hands of Major Mors and the Fallschirm-Lehr Battalion), was dangerous because of partisan activity in the area. The second was to transport the Duce to the nearby airfield at Aquila which was due to be captured by para-troops at any time. Skorzeny decided that this carried too much of a risk to his valuable prize and so chose the third option, using the Feisler Storch reconnais-sance aircraft piloted by Student's personal pilot Captain Gerlach to fly him directly off the Gran Sasso.

Captain Gerlach, flying overhead throughout the attack as observer, made an emergency landing on an improvised airstrip. Propaganda film shot by German war correspondents after the battle show the Italian soldiers who had acted as

guards escorting him to the plane and helping to make the makeshift airstrip, along with the Duce being escorted to the Storch and secured in by Skorzeny himself. Whether this was staged later is uncertain but during the rescue itself Mussolini and Skorzeny climbed aboard the tiny, overloaded plane (the Duce insisted on taking his luggage) and took off barely making it off the plateau. Gerlach had to taxi off the edge of the steep drop and use the fall to accelerate enough to claw his way into the sky, flying straight back to the Practica de Mare airfield where they changed planes and carried on with the journey to Vienna, where Mussolini was reunited with his family. Whilst staying in Vienna Skorzeny was awarded the Knight's Cross for his part in the mission and later flew with Mussolini to meet the Fuhrer on 15 September at the Wolfs Lair in Eastern Prussia.

Although the Fallschirmtruppe played a major part in the planning and execution of the operation, it was Skorzeny who became the hero of the Gran Sasso raid. The next morning, he received a phone call from the Fuhrer to tell him 'you have performed a military feat which will become part of history. You have given me back my friend Mussolini.'[31] Practically overnight, Skorzeny's reputation reached near-legendary proportions. He became a national hero in Germany and earned the distinction of not only being regarded by the Allies as 'the most dangerous man in Europe', but also of having his operation discussed in the British Parliament where Winston Churchill himself spoke with admiration of the mission being 'one of great daring'. [32]

For Il Duce, one form of imprisonment was exchanged for another as he became a virtual puppet of the Germans. Briefly back in command in Italy, he had less than a year to live before partisans would hang his body from lampposts in the street in a defeated Italy.

On 5 October 1943, men of the Brandenburger 15 (Parachute) Company and elements of 22 Airlanding Division carried out Operation Polar Bear (Eisbär), a glider-borne assault aimed at neutralizing the British airbase on the Greek island of Kos, just off the Turkish coast. The aim was to deprive the Allies of a vital airbase in the Dodecanese but also to try to encourage Turkey to offer its support to Germany in response to the threat of Allied occupation. Polar Bear was a complete success, paving the way for Operation Leopard, a parachute attack on the island of Leros in November.

Operation Bunghole: liaison mission to Yugolsavia, 19 February 1944

The German invasion of Yugoslavia had met with strong resistance from guerrilla forces of the Jugoslav National Army of Liberation (JANL), an army strong enough to control whole regions of the country and a real threat to the German-occupied areas. Attempts to storm these strongholds with ground troops had met with little success since the tactics of the partisan forces were to avoid direct

confrontation and to simply disperse into the mountains following any contact. As the JANL grew, though, it became increasingly difficult to disperse and regroup headquarters units at divisional and corps level and more difficult still when a National Headquarters was established under Tito. Throughout 1942 and 1943 German operations had forced repeated moves by JANL Headquarters and an offensive that opened in the autumn of 1943, codenamed Operation 'Fireball', had pushed them into the mountain stronghold of Drvar, where Tito's headquarters were now established in a 'cave' (actually a cleft in the rocks where a hut had been built to provide shelter). The cave was not only concealed from the air, making it an almost impossible target to detect and hit, it also had an exit through which the partisan leader could make good his escape if necessary.

In late January 1944, Captain Cornelius Turner of the newly formed 1st Independent Glider Squadron was dispatched with half a dozen pilots from their Italian base to an airstrip in Tunisia in search of three Horsa gliders left behind after the Sicily invasion of the previous summer. They found them, according to Turner, 'looking very lonesome and forlorn out there in the salt flats' and set about checking them out, although since no one was qualified to inspect them properly, 'checking them out' under the circumstances meant noting that 'nothing seemed to be hanging loose, so we plugged in the tow-ropes and took off on a wing and a prayer and flew them straight across the Med. to Sicily'.[33] After a 250 mile journey to Comiso in Sicily, the gliders were loaded with a jeep and anything else that would make up the 7,000 lb full payload and the loading was tested by simply hanging off the tail so that the front wheel lifted off the ground. Next, they lifted off and headed for Bari, in Italy, flying through high winds and driving snow, barely clearing the hilltops on the way, in a flight later described as 'an experience that was extremely unpleasant'.

Once at Bari, Turner was made aware of his mission. With Staff Sergeants McCulloch, Newman, Morrison, Hill and McMillan, Turner was ordered to prepare for a secret mission under the direction of a shadowy Cairo-based organization known as Force 133 to transport a Russian military mission of thirty-six senior officers to meet with Tito and his partisans at their mountain base at Drvar, a hundred miles inside Yugoslavia. Heavy snows meant that the landing strips were unusable by powered aircraft but gliders could make it. The plan called for three Horsas to land in the valley of Medenapolu two miles north-west of the town of Basan Petrovac, halfway between Zagreb and Sarajevo in the eastern Dinaric Alps, with a fighter escort of twenty-five Spitfires, another twenty-five P-51 Mustangs over the LZ and a diversionary raid by fifty B-17s on Zagreb providing cover.

After the difficulty of getting the Horsas to Bari, tug crews argued that it would be impossible to gain the height needed to clear the 8,000 foot peaks of the Dinaric Alps and so finally Wacos were substituted for the mission. At 1100hrs on 19 February the three combinations took off in clear weather.

Turner's tug pilot, Wendell C Little of Indianapolis wrote his name on the back fly-leaf of Turner's Bible and wished him luck, saying: 'You'll need it . . . it's all over town this secret of yours; I hope they don't jump us.'[34] Turner and his co-pilot 'Droop' Newman flew in silence apart from a few comments about course. Turner was uncomfortably aware of Marshal Korneyev sitting between them and the muzzle of a Russian machine pistol nestling six inches from the back of his neck.

Narrowly clearing the last peak and guided by straw fires below, the gliders put down within yards of each other. At 4,000 feet, the snow lay three feet thick, reducing the landing run of the Wacos to just twenty feet. Almost immediately, the pilots found themselves surrounded and 'forcibly embraced by almost unbelievably dirty and bearded men'. Turner recalled partisans 'armed to the teeth, rifles, crossed bandoliers, knives and grenades, bearded and stinking they swarmed over us'.[35] The party set out in sleighs for the town of Petrovac where the Russians removed their greatcoats, revealing splendid dress uniforms that looked extremely impressive to the scruffy guerrillas. Later, Vladimir Dedijer in his biography of Tito wrote:

> what joy it gave the Yugoslavs to see the representatives of the Red Army! Headed by Generals Korneyev and Gorskov, the mission came by plane through Persia, Egypt and Italy. The journey was very slow, especially the last stage, because the winter in Yugoslavia had been severe; deep snow had fallen, and the planes were unable to land on the mountain airfield near Petrovac, not far from Drvar; so the military mission transferred to gliders which were cut free over Petrovac, where they slowly landed on a thick blanket of snow. That same night there was a formal public gathering in observance of the anniversary of the Red Army. The Soviet generals were the guests of Petrovac. The people carried them shoulder high and danced the Kozara kolo. [36]

The bemused British glider pilots looked on as the feast continued. One remembered:

> For three weary hours we ate course after course, drank tot after tot. It was a veritable banquet, disclosing General Korneyev's anxiety for his crates. When these were opened they were found to contain not valuable weapons of war, but cases of vodka and caviar.[37]

For the next four weeks, though, life was very different. Food was in constant short supply and McCulloch, Newman, Morrison, Hill and McMillan, billeted together at the northern edge of the town, found their diet 'consisted exclusively of meat of every imaginable variety except beef, mutton or pork and of potatoes, unleavened rye and maize bread, and water'.[38] Turner found himself across the

road with three other officers who were part of the resident Military Mission. They had a sergeant and half a dozen signallers not far away, and nearby was an American colonel with 'enough staff for two good poker schools'. These military missions were in place to collect baled-out aircrews and liaise with Cairo and Bari to arrange arms drops for the partisans. Night after night the pilots would join their comrades lying out on the hillsides, curled up in holes dug in the snow to get out of the bitter winds, waiting for the C-47s to make drops of arms, rations and agents.

During the first week of their stay, German Ju88 aircraft had carried out daily strafing attacks and Turner was aware that the Germans also had a force of gliders fifty miles away at Bihac. The three Wacos still lay where they had landed despite Turner's repeated requests for them to be moved out of sight. Now he decided to take drastic action. He and Claude Hill walked out to the LZ where they began tearing the canvas of one of the Wacos and set fire to the frayed ends. Within minutes, the fuselage was burning fiercely. The partisans were furious at the destruction of what they now considered their property and Turner found himself taken before Tito himself to explain himself. Having explained his reasons, Tito told him quietly that it 'was a pity, but you did well; give my thanks to your pilots'.

By March, the snows were beginning to thaw and arrangements were made to fly out the glider pilots. Landing in nine inches of snow, two C-47s, including one flown by Air Commodore Whitney Strought, a famous multi-millionaire and former Grand Prix racing driver, put down on the mountain airfield. At that height, in deep snow, every possible article had to be jettisoned if the planes were to be able to get off the ground and seats, doors, parachutes, weapons and kit were all abandoned but even so the Dakotas still skimmed the treetops as they lifted off at the very last second for the two-hour flight back to Bari.

Back at base, Turner found he had been posted missing after an administrative error had confused his aircraft with another shot down over Split on the day of the flight in, but fortunately enough doubt existed that his family had not been informed. Still in his now ragged uniform, he was debriefed by a man from Force 133 who, far from congratulating him, threatened with a court-martial for burning the glider. Turner explained the situation and pointed out that the partisans may have been annoyed that he had destroyed 'their' glider, but it was in fact American property and so, if anyone, it should be they who complained. Nevertheless, a commendation for him was torn up.

Soon afterwards, though, Turner's concerns about leaving the gliders in plain view of German reconnaissance planes would be fully justified.

Operation Rösselsprung: the attack on Tito's headquarters, 25 May 1944

In the spring of 1944, it was decided that the only effective way to deal with the partisan army was to decapitate its command structure. Ground offensives had proved too slow to trap them so an extremely risky plan was put forward for an SS unit of 600 men to launch an airborne attack into the heart of the partisan force, known to be at least 12,000 strong. Codenamed 'Rösselsprung' (Knight's Move), the operation would involve the dropping of 314 paratroops with the support of 340 glider-borne infantry directly onto the headquarters location, with the aim of killing or capturing as many senior commanders as possible. The date was set for 25 May 1944: Tito's birthday.

The unit chosen to undertake the mission has often been referred to as a 'penal' battalion but is more accurately described as a 'probationary' unit, made up of men convicted of military crimes but offered the chance to redeem their honour and clear their records by volunteering for service in the battalion and undertaking particularly dangerous missions. Officially formed on 6 September 1943, the 500th SS-Fallschirmjäger Battalion was composed of personnel of the SS-Bewährungs Abteilung (SS Punishment Battalion) officered by volunteers from various Waffen SS divisions, with half the men paroled prisoners from SS penal companies, the other half being genuine volunteers.[39] This newly formed unit was not held in high esteem, even within an organization as thuggish as the SS, because of its high rate of personnel with questionable records. Their main advantage was that they were expendable. In preparation for their new operation, all ranks of the battalion were trained or given refresher training at the Kralyevo Parachute School in Serbia and by May were ready for the mission. Under SS-Hauptsturmführer Rybka's leadership, the unit was to be landed by parachute and glider onto a hillside plateau near the target but a shortage of aircraft meant that two drops would have to be made. The first, at 0700hrs, would secure the area ready for the second at midday. These would secure the area whilst the glider-borne assault using all available DFS 230 aircraft would land and capture the headquarters.

Immediately following a short but intense dive-bombing attack on Drvar, Ju52s began dropping their paratroops and within minutes the deserted town had been captured. With the surrounding area secure, the forty gliders of the assault group began their descent. The glider force was divided into six groups, each assigned a special objective. The 'Citadel' (Tito's cave headquarters) was the target of the 110 men of Group 'Panther', along with Rybka and his detachment of paratroopers. Across the LZs, several gliders had crashed on landing, killing all their occupants, but the pilots of Group Panther's gliders had each landed safely within yards of the mouth of the cave and Rybka felt sure that a fast assault would succeed in capturing Tito himself.

Suddenly, the partisans reacted and poured heavy fire into the advancing Germans. As the last gliders made their approaches, they were riddled with

gunfire as Rybka, firing a flare to bring reinforcements to him, continued to push forward but, faced with the heavy weapons and fortifications around the headquarters, the lightly armed airborne troops had no chance of reaching their target. As the battle raged, the second wave of paratroopers dropped only to find the DZ raked by machine guns and their losses were heavy. By late afternoon, Rybka reluctantly took the decision to withdraw from the cave area and his men began to regroup inside the walls of the town cemetery to await the promised relief force, although it was not until long after dark that the force was gathered together, by which time the SS paratroopers were exhausted.

The plan had called for the 1st Mountain Division and the 7th SS Freiwilligen-Gebirgs Division Prinz Eugen to link up with their airborne comrades within the first twenty-four hours, but they failed to reach them, finding themselves caught up instead in fierce fighting on the mountain roads. In Drvar, surrounded by a well-armed partisan army intent on annihilating them, the men of the SS battalion fought on. Throughout the night, successive attacks were fought off until, on the morning of 26 May, a battle group from the 13th Regiment of the 7th SS finally broke through. Only 200 men of the battalion answered roll call but it had achieved one goal – Himmler was so impressed by the fighting qualities the men had displayed that all ranks and insignia of the probationary men were restored and the unit redesignated as the 600th SS-Fallschirmjäger Battalion. Less than a year later, equipped with bicycles and panzerfausts, the unit would distinguish itself as a tank destroyer unit in the final throes of the war.[40]

By the time the paratroopers were relieved, Tito and his headquarters had already escaped and for the next ten days, German and Croatian forces slowly encircled him until on 3 June an RAF C-47 landed to evacuate key members of staff to Bari and then to a new base on the island of Vis. The offensive had cost both sides dearly, with over 3,000 partisans killed at a cost to the Germans of over 200 killed and nearly 900 wounded. Despite this, the nearest they came to their objective was the capture of Tito's dress uniform.

News of the operation reached the Allies via Force 133 and other intelligence sources and yet again seemed to prove the potential of glider attacks. Sicily had not gone as well as most hoped, but it had been successful. Now attention turned towards an attack on mainland Europe.

Operation Anvil/Dragoon – the invasion of Southern France, 15 August 1944

An operation against the coastline of southern France had first been put forward on 11 August 1942 at the Quebec conference where it was believed that a co-ordinated invasion of France on two fronts in May 1944 would trap German forces between the northern 'Hammer' and southern 'Anvil'. By late 1943, however, Churchill – who saw little need to open a second front in southern

France – was worried that it would take resources away from the proposed Normandy landings and was arguing that an attack against Trieste and from there into the Hungary would divert German forces away from the western front and so be of more value. His views were violently opposed by the American High Command who had already developed a plan in October 1943 to use three American divisions on Operation Anvil, assisted by seven French divisions. An agreement was secured at the Tehran conference that the major portion of the Free French forces would be given a chance in Italy to prove themselves ready. If so, they would be used in the invasion. The decision forced Churchill's hand as it met the demands of the Free French national liberation committee for a more visible part in the war. Responsibility for overall preparation and execution of the landing would therefore be the responsibility of the US 7th Army. Stories would circulate later that the code name for the operation was changed from 'Anvil' to 'Dragoon' to reflect Churchill's belief that he had been dragooned into complying.

The plan put forward called for the taking of Toulon and Marseille harbours as part of a bridgehead for the French arriving on D+3. The landing zone would be further along the coast to the east to avoid the Hyères Islands and the concentration of artillery covering the approaches to Toulon. This would also allow for the taking of the small ports of Saint-Tropez and Saint-Raphael, and control of the plain of Fréjus, ideal for the construction of airfields. The shortage of landing craft due to the demands of the Normandy operation provided an opportunity for the British to argue for the suspension of the southern landing and the final decision was put off until March 1944, with hopes high that the plan would be cancelled. Then General Alexander Patch, who had made his name on Guadalcanal, took command of the 7th Army and soon announced that Anvil would be the second highest priority of all US operations. In July, Field Marshal Sir Henry Wilson, the Supreme Commander of Allied Forces in the Mediterranean, received orders to go ahead with the invasion. Two events had finally swayed the argument. In early June, Rome fell to the Allies, freeing up large numbers of combatant troops, and in France Operation Cobra had succeeded in breaking out of Normandy. At short notice, Operation Dragoon's D-Day was set for 15 August 1944.

The 1st Airborne Task Force, a composite of around 10,000 British and American airborne troops, would lead the invasion, landing around Le Muy, a transportation hub about twelve miles from the coast. Once on the ground, the 1st Airborne Task Force would go after Le Muy itself and keep German reinforcements from reaching the beachheads by cutting roads and laying ambushes. Around 150,000 men of the 7th Army would then storm ashore in landing craft from a massive fleet of nearly 900 ships. Then, on the left, Attack Force Alpha, comprising the US 3rd Division, would land south-west of St Tropez, clear the small peninsula there, and move inland. In the centre, the 45th Division of Attack Force Delta would strike north of St Tropez, taking the coastal town of St

Maxime and linking up with the 3rd in a movement north-west. On the right flank, stretching to Antibes, Attack Force Camel's 36th Division would take St Raphael and Fréjus and secure the flank. With the beachheads established, De Lattre would lead his French troops through the VI Corps's secure left flank westward to capture Toulon and Marseille.

The first phase of the airborne assault, Operation Albatross, began at 0100hrs on 15 August when nine C-47s carrying three teams of British and American pathfinders took off from Italy intending to drop into the Argens river valley at around 0330hrs and prepare the drop zones around Le Muy, but heavy ground fog prevented the pilots from locating the drop zones and the aircraft were forced to circle the area time and again trying to find any landmarks. Eventually, the teams jumped with the last reaching the ground just fifteen minutes before the first wave of paratroopers arrived, but so far from their target that they were not able to link up to the main force until the following day. By 0530hrs, 5,600 paratroopers were on the ground but scattered over almost fifteen miles of coast.

The second phase, Operation Bluebird, was a glider landing at 0800hrs timed to coincide with the seaborne invasion. Thirty-five Horsas would land a Royal Artillery unit with the help of forty Wacos flown by Americans on double tow behind their tugs. Lifting off at 0400hrs, the gliders headed west but, as they reached Corsica, the Horsas were recalled because of the fog over their landing zones. A delayed release over the target could put undue strain on the tugs but for some reason the same did not seem to apply to the Wacos.

As the seaborne force charged across the beaches, thirty-three Wacos appeared overhead. Seven had either ditched when their tow ropes broke or had disintegrated in mid-air when their overloaded airframes collapsed. The survivors began to circle, looking for a place to release. The British paratroopers had cleared most of the LZs of anti-glider obstacles but there were still a number of accidents when gliders tangled in olive trees and vineyards in the poor visibility. An hour later, the fog lifted.

Phase three, Operation Dove, got under way that afternoon. The thirty-five Horsas recalled earlier were now in the air and all landed safely on their allotted objectives at 1645hrs, as another 800 US paratroopers dropped onto their drop zones. Richard Clarke, a Horsa pilot, recalled that

> we were proceeding to assemble in battle order when the American glider force appeared, all roughly at the same time. There were many collisions in the air and on the ground and jeeps and equipment rained down. It was all very hectic. [41]

'Hectic' was something of an understatement. As one American pilot later put it, the landing zone looked 'like Piccadilly Circus at high noon with the traffic being directed by an insane policeman'.[42] Seven serials of C-47s towing 332

Wacos carrying over 2,000 men, jeeps, guns and ammunition had assembled as planned over Elba at about 1630hrs and turned west. In one of the lead serials, a glider pilot had contacted his tug plane to report a violent tail vibration which would force him to abort. The tug pilot decided to try to release the glider over Corsica rather than ditch and executed a 180 degree turn without informing the rest of the serial of what he was about to do. The aircraft behind him followed suit. Realizing his mistake, the tow pilot released his glider and rejoined the skytrain, but now in the middle instead of the front. Aircraft following behind had to slow down to avoid running into the lost serial, others climbed to avoid collision. Other aircraft speeded up, pulling their gliders at over 150mph and causing them to begin falling apart. With four serials due to arrive over the LZ at ten-minute intervals, instead they arrived together, stacked anywhere between 1,000 and 3,000 feet. The lead serial had overshot and now turned back, headed directly into the following groups. At one point, 150 gliders were in free flight, all fighting for space on the crowded LZ – 'thick as flies around a dead road rabbit' as pilot Jack Merrick would later describe it.[43] Mid-air collisions were frequent, with one pilot reported being narrowly missed by a jeep, with its driver still aboard, falling from a shattered glider above.[44] By the end of D-Day, Operation Dragoon was declared a complete success.

Casualties were considered negligible for a large-scale invasion, but even so, landing in daylight without opposition, eleven glider pilots had been killed and thirty-two injured. With Le Muy captured for the loss of just one man and fifteen wounded, many asked whether such a massive airborne attack had been necessary in the first place and the US glider crews, angry at what they saw as the result of bad planning, sarcastically declared themselves the recipients of 'the Purple Shaft with Barbed Wire Cluster' for their efforts.

With the invasion of Southern France, the need for assault operations by airborne troops in the Mediterranean seemed to be fading. Towards the end of the year, though, they would again be stood by for an assault, not on the Germans, but on an ally.

Operation Manna – the capture of Athens, 13 October 1944

In October 1944, the partial withdrawal of the Germans from southern Greece left a power vacuum, with a variety of factions rushing to fill it. With civil war imminent, the British sought to stabilize the situation by installing the exiled Greek government back into power in Athens and launching an air and sea operation to take the city. Operation 'Manna' would involve a drop by 2nd Parachute Brigade on the Megara airfield twenty miles outside Athens. Ironically, it was from here that German gliders had left for Crete and now pilots of the Independent Squadron of the Glider Pilot Regiment would take a force of Wacos (Horsas were not available as they had all been used on Operation Dragoon) carrying guns and ammunition to the same airfield.

Cornelius Turner, the man who had flown into Tito's headquarters earlier in the year, looked nervously at his cargo. Carrying 4,000 lb of high explosives on Friday 13th did not seem like a particularly good omen. Nearing Corinth, a storm blew up, forcing the gliders back to Bari and the main parachute drop had to be delayed for twenty-four hours. Then, on 15 October, forty-four C-47s carrying supplies took off again from Bari, twenty of them towing gliders. Most carried jeeps and six-pounder guns but one brought in a small bulldozer for airfield repair work. The operation was a complete success apart from a few casualties among the paras dropped in high winds and, within days, the Greek government was in place. The gliders remained at Megara for a month until civil war broke out, when they were used to evacuate the pilots back to Tarquina. Other than resupply flights, the Mediterranean glider war was over.

Chapter Five

'Hitler's best friend in America': the US glider programme

In May 1943, *Time* magazine reported that

> during its harried 18-month career the Army Air Forces glider program has found the winds of public and official esteem as tricky as the thermal air currents over a mountain peak. Like many another new weapon, the glider was first overlooked, then over-dramatized, later over-disparaged.

By the end of the war, the US would field nearly 15,000 of its Waco CG 4 combat gliders alone but before 1940, the US military had shown only a passing interest in gliding for military training and none at all for its potential as a troop carrier. Back in 1929, the War Department had considered using gliders as inexpensive training aircraft but the instructors consulted could see no practical use for them, reporting that 'military airplanes . . . are high powered and no beneficial result would ensue from training our student pilots in gliding'. A few officers flew gliders to keep their hand in but in 1931 the Air Corps demanded that any officer flying them, even for sport, should obtain War Department approval first. By 1936, the sport had not achieved a measure of popularity even close to that in Germany and there were only 413 gliders, mostly of foreign design, in America, with 182 of them in just four states: Ohio, New York, California and Michigan. There were fewer than 140 qualified glider pilots in the entire country.

Like their British allies, the Americans were shocked into action by the German success at Eben-Emael but even so, it was not until February 1941 that General Henry H 'Hap' Arnold was finally able to announce that 'in view of certain information received from abroad, a study should be initiated on developing a glider that could be towed by an aircraft'.[1] As one staff officer put it, 'we've got a lot of catching up to do'.[2] Arnold was firmly of the opinion that a civilian expert was likely to know more about his subject than the military, so to advise him on how to recruit and train glider pilots and on what sort of gliders to use he recruited 35-year-old Lewin Barringer to coordinate the entire programme and a number of other prewar sailplane enthusiasts to tackle other problems. Champion glider pilot John Robinson quickly established the guidelines for a detailed thirty-hour instructional course used to train the initial cadre at eigh-

teen civilian schools in eleven states, and which became the standard for all 6,000 recruits to follow.

The main problem, as in Britain, was the lack of aircraft to fly. Prior to the war gliders and sailplanes were not cost-effective to produce in large numbers and so there was no existing production capacity in place. Contracts were sent out for designs to meet two separate specifications. First, for an eight- or nine-seat transport with single prototypes of the Frankfort Model TCC-4l designated as the Experimental Cargo Glider (XCG)-1, the Waco NYQ-3 as XCG-3, the St Louis XCG-5 and the Bowlus XCG-7. Secondly, for a larger, fifteen-seat glider, the same four companies produced the Frankfort TCC-21 as XCG-2, the Waco XCG-4, St Louis XCG-6 and the Bowlus XCG-8. Of these, the Waco design was chosen and the CG-4 became the first and most widely used US troop glider of the Second World War. Just as in Britain, though, priority went to combat aircraft, so the Air Materiel Command (AMC) were forced to allow production contracts to virtually anyone who could promise rapid delivery, regardless of their lack of experience. Of the sixteen prime contractors involved in the glider programme,

Henry H 'Hap' Arnold

Major-General 'Hap' (a childhood nickname given him by an aunt and short for 'happy') Arnold suffered as a result of the enormous political pressures and physical burdens placed on him in creating the US Army Air Force, experiencing four heart attacks between 1943 and 1945. After the fourth attack, 'The Chief' as he was known to his staff, was allowed to remain in the service, but under conditions which amounted to light duty. With the war clearly in its final stages, Arnold reluctantly agreed. In December 1944 he was made a General of the Army, placing him fourth in the seniority of the US Army rank structure. In 1945, he founded Project RAND, a think-tank for military strategy which later developed into the RAND Corporation and, after further heart problems, retired in 1946. His successor, General Carl Spaatz, became first Chief of Staff of the United States Air Force when it became a separate service in September 1947.

Virtually penniless except for his pension, Arnold retired to a ranch near Sonoma, California, in the summer of 1946 and wrote his memoirs, published as *Global Mission*. In May 1949 Arnold was made the first (and to date, only) General of the Air Force and became the only American to serve in five-star rank in two of its military services.

Three of Arnold's sons were also graduates of West Point and served as colonels in the United States Air Force. He died on 15 January 1950 at his home and was given a state funeral in Washington, DC, at the Arlington cemetery where he was buried alongside his two youngest sons.

only two, the Ford Motor Company and the Cessna Aircraft Company, had any previous experience in the field. Even so, it took Ford six months to reconfigure their production line. Other contracts went to some unlikely candidates – to furniture and refrigerator manufacturers, to Steinway and Sons Pianos (for the wing and tail assemblies), H J Heinz Pickle Company (wings) and Anheuser-Busch (inboard wing panels). Quality control was an enormous problem and costly too. At a time when a combat-ready state-of-the-art P51 Mustang fighter cost the US government around $58,000, mismanagement and lack of direction meant that a Waco CG-4A glider could cost anywhere between $14, 891 (from Ford) to the single glider provided by the National Company at a staggering $1,741,809. With the exception of Cessna, which received sizeable government subsidies, none met the production deadlines.[3]

As the number of gliders available grew, Arnold had to tackle the problem of what to do with them. Because the gliders were a completely new weapon, any sort of doctrine for their use was virtually non-existent. General Arnold's 1941 memo had asked for a glider for 'transporting personnel and material and seizing objectives that can not normally be reached by conventional ground units' and went on to specify that the glider would deliver a self-contained combat team. In May 1942, the newly produced manual *Tactics and Technique of Airborne Troops* stated that

> an invasion force would require a large number of gliders. Initial estimates called for 1,000 gliders (thus 1,000 glider pilots) and 202 transports would be necessary to move a 14,000 man division. The gliders would carry three-fourths of the division while the other quarter would ride in the tugs. Half of the gliders would be eight-place versions and the other half would carry 15 troops each. 202 tugs for 1,000 gliders meant multiple tows would be the rule: 4 eight-place gliders or 3 15-place gliders for each tug.[4]

It emphasized the general concept that glider forces would only resupply parachute troops – completely ignoring General Arnold's original paper calling for them to act as a combat team. 'In training glider pilots, primary attention will be given to their training in the piloting role. The secondary function of these pilots . . . will consist of ground combat operations with the air-borne units which have been transported on their gliders.'[5] In other words, the doctrine evolving in the US was almost the exact opposite of British and German use of gliders as a combat weapon, with the newly formed I Troop Carrier Command (TCC) firmly of the opinion that glider pilots were 'aerial truck drivers' in 'air trailers'.

Finding the men to fly them was also becoming a problem. It was expected that glider pilots would be commissioned power pilots, immediately bringing the programme into conflict with the need for these men to fly combat fighters and bombers and few who had graduated in these roles wanted to now become 'aerial

truck drivers'. At the time, the Army Air Corps required trainee pilots to be at least 21 years old with two years of college, the minimum thought necessary to allow them to be commissioned on graduation from the training programme. If the rapid expansion of the Air Corps, and especially the glider programme, were to meet the quotas set, entry requirements would have to be relaxed.

In December 1941, in the wake of the attack on Pearl Harbour, Arnold found his job becoming easier as war footing began to shake the rigid military bureaucracy. As a result, he was able to support a suggestion by Colonel Earl Naiden, commander of the Air Force Training Division, that enlisted volunteers should be sought, provided that they had not previously failed military flying training, held a Civil Aviation Administration qualification or at least thirty hours of civilian glider flight and could pass the medical and educational requirements of power pilot candidates. Even though the RAF was already successfully using sergeant pilots, many of Arnold's own staff had reservations. Some of Britain's enlisted pilots had found themselves commanding crews with commissioned officers acting as co-pilots and navigators and the American officers, products of a highly competitive and elitist prewar military, couldn't bring themselves to allow lower ranks to have that kind of responsibility.

The response, in May 1942, was to ask Congress to create a new grade above the enlisted ranks but below that of second lieutenant, then the lowest commissioned rank. On 8 July, Public Law 658 was signed by the President, creating the new grade of Flight Officer (F/O), equal in status to that of warrant officer junior grade.

> It is the desire of the Commanding General, AAF, that these new Flight Officers be accepted in the nature of 'Third Lieutenants' by all personnel and that they be required to comply with, and in turn to be treated in accordance with, all the customs and courtesies of the military service pertaining to commissioned officers.

This hybrid meant that the teenage graduates held neither warrant nor commission but Congressional appointments, referred to not by rank but as 'Mister', and not allowed to undertake the full responsibilities of commissioned officers. While second lieutenants and above were required to carry out additional duties such as Officer of the Day or Guard Commander when they were not flying, flight officers more usually had their time to themselves. They also enjoyed a 20 per cent increase in pay for overseas duty, as did enlisted men, instead of the 10 per cent paid to officers, meaning that their $150 per month basic pay was the same as that of junior grade warrant officers and second lieutenants, but when overseas, a second lieutenant collected $240 in combat, while a flight officer drew at least $255 and often more because of his added time in service. In the snobbish ranks of the Air Corps, socially they fell somewhere between the enlisted

and commissioned ranks but in the wartime military, debate about social standing was the least of their problems.[6]

Despite these perks, the glider programme continued to have difficulty in finding recruits among those meeting the criteria for powered flight training and slowly began to reduce the entry requirements – accepting volunteers up to the age of 35, for example, instead of the 26 maximum for powered pilots, and quickly dropping the restriction on candidates who had previously failed military flight school. John Lowden, one such failed power pilot, was invited by the unit's Executive Officer to apply for glider training instead. When he turned down the offer, he found himself assigned to carrying out an inventory of thousands of blankets stacked in a warehouse where temperatures hit 90 degrees by mid-morning. After five days of this, Lowden finally reported back to the Exec.

> 'Sir, I have given careful consideration to your suggestion that I "enlist" in the glider corps and I have decided to do so'. He said 'I thought you'd see it my way' . . . When I went to check out with the sergeant who was caretaker of the warehouse, he shook my hand and said, 'Good luck. You held out longer than the others.'[7]

Successive reductions in entry requirements opened the trainee floodgates for men who were for various reasons unsuitable for air force training and, by the final revision published on 10 August 1942, a maximum pilot production rate of 12,000 a year was proposed. Shortly after that, it became apparent that pilot production was exceeding any existing or planned tactical need and glider pilot procurement ended on 16 November.

Independently of the efforts of the Army Air Corps, the US Navy had carried out experiments with gliders during the 1920s but by 1940 the programme had been dropped. As the army started its build up, the Marine Corps began to look at the possible use of parachute and glider-borne troops to support its seaborne role and at whether amphibious assault gliders could be developed for landings on enemy-held beaches. Like their army counterpart, marine and naval aviation training had not considered using sailplanes for the initial training of pilot candidates and so started their programmes from scratch, following the army's lead by buying thirteen Schweizer Model 2-8 two-seat, all-metal sailplanes in 1942. After tests with the Pratt-Read LNE-1 in 1942, it ordered a hundred although it appears probably only seventy-five were actually built, many of which were never delivered, and eventually most of the available planes were handed over to the army as the TG-32 trainer. The high-performance sailplanes were poor preparation for the heavy assault gliders the men were expected to fly.

Initially, the Marines glider programme was small, with just seventy-five gliders and 150 pilots, planned as enough to transport two battalions of infantry into action. Marine Glider Group Seventy One (MLG-71) had been organized at Marine Corps Air Station (MCAS) Parris Island, South Carolina, in April

1942 to oversee the growing glider programme and in May Marine Glider Squadron Seven Hundred Eleven (MLS-711) was organized under MLG-71 to put the programme into practice. With a training programme in place, the Navy and Marines now began to look for a suitable assault glider to meet their requirements. The Army's CG-4A was an obvious starting point and thirteen were acquired and redesignated as the LRW-1. Naval trials improved the towing bar for the glider, which was later incorporated into the Army's types. Further tests of the improved Waco CG-15 gliders (now designated the XLR2W) were also carried out, but with the beach assault role in mind the Navy issued its own requirements for twelve- and twenty-four-seat amphibious gliders. The results were technically successful, with Allied Aviation Corporation producing two XLRA-1s and Bristol Aeronautical Corporation four XLRQ-1s to fill the twelve-seat requirements and one hundred of each were ordered. The larger twenty-four-seat glider resulted in AGA Aviation's XLRG-1 and Snead & Company's XLRH-1 submitting plans for twin hulled amphibious gliders but neither was built.

By June, hopes for glider operations had expanded to a planned force capable of transporting 10,800 men in 1,371 gliders flown by a trained pool of 3,436 pilots. Among the hopeful candidates for glider training was film actor Tyrone Power, considered too old and poorly educated to be accepted by the Air Force, who instead enlisted in the Marines with the ambition of piloting a glider into combat. On 24 July 1942, construction began on 2,931 acres of former ranch land on the eastern shore of Eagle Mountain Lake in Texas to provide a base for Marine Corps glider operations and both units moved in the following November. At their peak, these units had between them just twenty-one gliders, thirty-six officers and 246 enlisted men to put together the planned airborne armada, until it became clear that Marine operations in the Pacific would involve assaulting small, widely scattered jungle-covered islands where the opportunities for glider landings would be limited. In May 1943 the programme was terminated, MLG-71 and MLS-711 disbanded and orders for gliders cancelled. Those already delivered were left at MCAS Eagle Mountain Lake for disposal.

By that time, the whole US glider programme was running out of steam. In June, many civilian and military officials had been dismayed to hear that Major-General William Lee, commander of the 101st Airborne and widely regarded as the father of the US Airborne, had been injured in a glider crash. In July, news of the heavy glider loss in Sicily reached them and, at the beginning of August, a public relations exercise had gone disastrously wrong when a CG-4A carrying local dignitaries had broken up in mid-air at a St Louis war bond rally, killing all on board. The cause of the crash was traced to a substandard wing strut fitting manufactured locally under subcontract, ironically enough to a company that had previously made coffins. Investigators found that a quarter of the fittings in the company's stockroom had also been poorly made. Jokers claimed that the man who had sold General Arnold the expensive and so far unproductive idea

of using gliders must be 'Hitler's best friend in the USA'.[8] Just three days after the crash, General Arnold and the rest of the Air Corps staff arrived at the Lauringburg-Maxton Army Air Base in North Carolina for a demonstration of glider operations. Arnold was a worried man.

Arnold's guide for the visit was Major Michael Murphy, an experienced pilot but a recent convert who had graduated from the Twentynine Palms glider training centre in California the year before. Without wasting time, Murphy took his visitors out to the flight line for a demonstration of glider towing by a variety of aircraft ranging from C-47 transports to B-25 bombers and even the P-38 Lightning fighter followed by a glider pickup using the 'snatch' technique developed before the war for the US Postal Service, where a kind of rod and reel mechanism was used to collect sacks of mail attached to a towline suspended between two poles. A hook fitted to the aircraft would catch this towline and 'snatch' the sacks into the air and then a reel would pull them into the cargo doors. Between 12 May 1939 and April 1942, the US Postal Service had carried out 93,934 airmail pickups using this method without a single accident. Adapting the system for the much heavier gliders was a long process but by August experiments were well advanced and the generals were impressed. The visitors were then taken to a large pond at the edge of the base where a CG-4A fitted with flotation devices performed a landing on water. The VIPs then adjourned to the officer's club for dinner as the sun began to set.

As darkness fell, Murphy ushered them on to a waiting bus for a trip to a remote section of the base for a night landing demonstration – a touchy subject after Sicily. All the visitors expected was a lecture about flying distances and statistics but Murphy had something else in mind. The bus arrived at a row of benches near a thick stand of pine trees with nothing else visible for miles around. Murphy ordered all lights and cigarettes to be extinguished. In the darkness, unable to see Murphy or anything else, the visitors had to concentrate on the lecture he gave through a loudspeaker. Several miles away, ten CG-4As released from their tugs and headed towards a dim light concealed behind a barricade on the ground. The muffled thumps of the landings were hidden by Murphy's loudspeaker but, as he heard the last aircraft land behind him, Murphy finished his speech and called out 'Lights!' A hidden battery of searchlights flashed on to reveal to the visitors ten combat-ready gliders sat where less than half an hour before had been a wide and very empty field. As icing on the cake, a nine-piece marching band paraded out of one of the gliders playing the Air Corps marching song. Major Murphy's 'Pea Patch Show' (the field had previously been a pea farm) became legendary and Arnold returned to Washington more convinced than ever of the effectiveness of glider operations.[9] Now all he needed was an opportunity to prove that gliders could be used successfully in combat. That opportunity was not long in coming.

Chapter Six

'Any place, any time, anywhere': operations in the Far East

Although the US Marine Corps, tasked with island hopping across the Pacific, had already decided to cancel its glider programme as unsuitable for the type of operations it envisaged, the army still saw a role in its operations in the large mountainous islands of the western Pacific. General Douglas MacArthur had been appointed the youngest general officer in the US Army in 1918 for his distinguished command of the 42nd Infantry Division in France but now, at 62 years old, the distinguished commander faced defeat and humiliation when he was ordered to leave Corregidor and escape to Australia, leaving behind thousands of his men as the Japanese pushed the Americans out of the Philippines in March 1942. Arriving in Adelaide, he told waiting journalists that

> the President of the United States ordered me to break through the Japanese lines and proceed to Australia for the purpose, as I understand it, of organizing the American offensive against Japan, a primary objective of which is the relief of the Philippines. I came through and I shall return.[1]

Even as the American buildup began, the Japanese advance continued until, in July 1942, they reached New Guinea and within 300 air miles of the Australian coast. At the same time, forces on Guadalcanal began constructing airbases from which to strike at American supply convoys.

New Guinea, 4 September 1943

The Allied response was swift. Australian troops rushed to New Guinea as the US 1st Marine Division retook Guadalcanal against light opposition. The Japanese, finally halted, consolidated their forces around Lae and Salamaua where 10,000 troops were massed. MacArthur decided to feint against Salamaua to divert forces there and then to strike against his main objective, Lae, with a joint air and sea assault. The Australian 9th Infantry would land by sea twenty miles east of Lae and attack from there, and the following day a daylight jump by the US 503rd Parachute Infantry Regiment would seize an abandoned airfield

twenty-two miles west near the town of Nadzab. The paratroopers would be followed by twenty-five CG-4As carrying their heavy equipment and link with Australian engineers to prepare the strip to take C-47s. The assault would mean that the Japanese commander, Lieutenant General Hatazao Adachi, would have to either fight against superior forces or withdraw to the north. D-Day was set for 4 September 1943.

The twenty-eight glider pilots selected for the mission had been in Australia since the previous January. Graduates of the first class of enlisted pilots at the Elmira base, they had been flown to Brisbane only to find no one was expecting them and no gliders in sight. Temporarily assigned to an aircrew replacement unit, a few days later they discovered their crated aircraft had surfaced at an air depot nearby. Flight Officer William Sampson found himself summoned before the commanding general of the Fifth Air Force who ordered a flying demonstration for the following Saturday, adding that he had 'plenty of Cubs to pull the gliders'.[2] Realizing that the general had no understanding of gliders and that he and his men had just a few days to learn how to put their aircraft together, Sampson spoke to an aide who arranged a C-47 tow. Working day and night, a glider was made ready and the demonstration went off according to plan. Two weeks before the Nadzab D-Day, twenty-five gliders were ferried 400 miles across the shark-infested Coral Sea to their final staging base. On 4 September, according to plan, the Australians landed and began their march westwards. The following day, the paratroopers landed to find the town deserted by the Japanese and the airfield in excellent condition. The glider mission was scrubbed – to the relief of pilots who had faced a 320-mile tow across mountainous jungle in overloaded gliders. Lae fell to the Australians on 16 September and the gliders were put into storage at the staging field of Dobodura, their pilots reassigned to fly L5 observation planes for artillery units or as second pilots on C-47s. A year after arriving in Australia, the glider pilots went home. Even as the New Guinea operation wound down, another, far more successful glider force was about to grab headlines around the world – in the now almost forgotten invasion of Burma.

Operation Thursday – the invasion of Burma, 5 March 1944

At the start of the Second World War, Japan was determined to halt the expanding influence of the empires of the western nations in Southeast Asia and to forcibly create its own 'Greater East Asia Co-Prosperity Sphere'. British-held Burma was key to achieving this and its conquest would drive a wedge between the British in India and those in Malaya and Hong Kong, as well as isolating the French in Indochina. More importantly for the Japanese, Burma's deep mountains created a natural barrier to conclusively seal off China and starve her into submission after years of heavy fighting in resistance to Japanese expansionism. If the supply of arms and ammunition to Chiang Kai-Shek's army could

be stopped, Japanese conquest of China would be certain. Burma could then become a springboard for further operations to grab the mineral rich states of Southeast Asia and westwards into the thriving industry of India, where independence movements against the British Raj were already active. It could also cover the flanks of the drive southwards through the Pacific rim. Ultimately, it was thought, the Japanese push west would link with German plans to expand into Persia.

In December 1941 the Japanese launched their attacks against the US Pacific fleet at Pearl Harbour and by February 1942 had gained control of Thailand, the Philippines, Guam, Wake and Hong Kong. British plans for the defence of their Burmese territory had relied heavily on the regional alliance structure of India, Thailand, Indochina and Singapore, assuming they would all be available to come to the aid of Burma if necessary, giving the British time they needed for the preparation of their defences. The existing forces already rapidly deployed there from India and Africa, along with two Chinese divisions under the command of American General Joseph 'Vinegar Joe' Stilwell, would benefit from the country's rugged geography and its climatic conditions – Burma's geographical features of high mountains and heavy jungle meant that the few roads and railways in the country, and even the navigable rivers, ran through natural chokepoints where an advance could be held up. Alongside this, the Burmese monsoon season seemed to offer a major natural defence. From mid-May to late October of each year, rainfalls varied from about 45 inches in the dry zone of north central Burma up to 200 inches in the area of Rangoon. During the monsoon season, it was reasoned, troops would find themselves mired in ankle-deep mud and movements would be brought almost to a standstill. In short, the British believed, military operations were limited to the dry season so, if they could hold up the Japanese advance with a relatively small defensive holding force, the monsoon season would finish the job and allow the Allies to strengthen their hold.

The British defence plan failed. Military planners had made some racist assumptions about their enemy that would prove disastrous. In the years before 1941, many in the West had ignored the rapid industrialization under way in Japan, regarding it almost as a backwater populated by characters from *The Mikado*. British defence plans for their Far Eastern empire assumed that any 'professional' army would behave as the British would, and any that didn't were likely to be little more than a native rabble. Instead, the Japanese, far from relying on the road and rail network, recognized the advantage of using the jungle as cover rather than seeing it as an obstacle – dividing their forces into small groups moving through the jungle to bypass British troop movements and getting behind British lines in much the same way as the German *blitzkreig* aimed to isolate units for later forces to clear up. The situation was made even worse because British Major-General William J Slim's command, preparing for war in

the North Africa, had been trained for mechanized desert warfare rather than the jungle warfare it found itself caught up in.

As a result, Singapore fell because the British assumed that if *they* wouldn't attack the garrison overland, no one else could. Instead, a straightforward Japanese offensive plan, with the most basic equipment needed for transport, swiftly overcame barrier after barrier. Thailand fell after only eight hours of fighting. Singapore fell next on 15 February 1942 after seventy days and finally, by mid-May 1942, the Japanese had destroyed the weakest link in the defence plan, the regional alliance structure. They had established air superiority over Burma and raced against the oncoming monsoon season to remove the Allied forces permanently from the area. As the battered Allied army struggled into India, Lieutenant-General Joseph W Stilwell admitted: 'We got a hell of a beating. We got run out of Burma and it's humiliating as hell. I think we ought to find out what caused it and go back and retake it.'[3] It was easier said than done. If they were to stem the advance and take back Burma, the Allied forces would have to beat the Japanese at their own game.

Colonel Orde C. Wingate, a former artillery officer who had already led special units successfully in Palestine and Ethiopia, arrived in India as the retreat ended and immediately began studying everything he could about Burma and the Japanese. Geography, culture, tactics – anything, he felt, that could be useful. He quickly decided that the combination of Burmese topography and Japanese perimeter defence could not be assaulted head on but that the weak spot lay in the long and vulnerable Japanese logistics lines leading to the rear. Wingate argued that hit-and-run tactics by small highly mobile long-range-penetration (LRP) groups could seriously disrupt the Japanese and weaken their hold on Burma. Travelling with only what they could carry, these LRP units would be heavily reliant on continual aerial resupply and aerial firepower in lieu of artillery. Such operations would create widespread confusion behind the Japanese forward areas and, used ahead of the larger main Allied expedition, the chaos caused would gradually undermine the forward units and enable more conventional forces to attack head on.

Wingate's plan was accepted and work began developing a force to be known as 'Chindits' (named after fierce beasts of Burmese mythology) but a plan to coordinate with the Chinese fell through when Chiang Kai-Shek withdrew his pledge of forces for the main assault. Despite the setback, Wingate finally received permission to test his theory and Operation Longcloth (also sometimes referred to by some veterans as 'Loincloth', possibly a mishearing of the operational orders) was launched in February 1943. Wingate and his Chindit columns set out from Imphal with pack mules and bullock carts carrying their supplies in a trek that would continue until early June. In that time, Chindit raids successfully blew up over seventy-five sections of railway with very few casualties, frustrating Japanese attempts to find and engage them for nearly two months.

The operation was considered to be a great success, proving Wingate's theories and showing that small force could inflict damage on the enemy out of all proportion with its size, but it failed in many other key areas. First, the Chindits were intended to harass the Japanese in conjunction with a larger Allied attack. In this case, the Chindits were operating alone and thus the Japanese were able to concentrate all of their forces in operations against them. Secondly, the limits of the air support affected the effectiveness of the ground operation. With the Japanese having air superiority, supply drops were threatened and air strikes against identified enemy ground targets were difficult to arrange and direct. Finally, the lack of air support had another, potentially more serious effect on morale among the units, since there was no provision for casualty evacuation and all sick and wounded men had to be left behind, including some of Wingate's close friends.

Further afield, the Allied political leaders, and the US in particular, were desperate to keep China in the war. If it fell, the huge Japanese army currently tied up there would be freed for use elsewhere. An enormous, but very risky and expensive, supply mission was already under way to keep China supplied by flying in supplies from India over the Himalayan 'Hump' – by now the only supply route open. A safer and more efficient overland route would need to go through northern Burma and the US wanted to pressurize the British into greater efforts to retake the country. Prime Minister Winston Churchill, always a supporter of unconventional warfare, saw an opportunity and ordered Wingate to accompany him to the 'Quadrant' conference held in Quebec in August 1943.

A unified China–Burma–India (CBI) theatre command under the overall leadership of Lord Louis Mountbatten was established by the conference, which also laid out the principles of the Allied plan for the Far East which saw the retention of China as an ally as vital in an effort to ensure 'the destruction of Japanese sea and air forces, the blockade of Japan, and the large scale bombing of the Japanese homeland as a preliminary to the possible invasion of Japan'. US forces, it was decided, would advance towards Japan through the central, south-west, and possibly north-west Pacific approaches, whilst British forces would establish a Burma-to-China supply route and push north through the Straits of Malacca and South China Sea.

Churchill, ever the showman, introduced Wingate as a successor to 'Lawrence of Arabia' and, in a dramatic lecture, Wingate told the story of the first Chindit expedition and laid out his new plan for the formation of six LRP groups to disrupt Japanese communications and rear installations in Burma during the forthcoming 1943–4 dry season. Three of the groups would be held in reserve whilst the others would carry out twelve-week-long operations behind enemy lines. RAF air liaisons attached to these groups would be called upon to direct fighters and bombers to targets that would otherwise be undetectable by air. This time, he stressed, they would work in support of a much larger main offensive

to successfully force the enemy out of Burma. Describing his ideas to the Chiefs of Staff Committee at the conference, Wingate claimed his aims were

> to disrupt the enemy's communications and rear installations. . . . [Furthermore], the consequence of their successful use [would be] widespread confusion and uncertainty behind the enemy's forward areas leading to progressive weakening and misdirection of his main forces.[4]

To do this effectively, he added, he needed US air support and asked for one bomber squadron per Chindit column, between twelve and twenty C-47s, and a sufficient number of light planes to perform a variety of tasks, including evacuation of the wounded. The British, he knew, could supply the bombers, but transport and light aircraft capable of using small jungle clearings were in short supply.

Having just recently denied 'Vinegar Joe' Stilwell (the senior US officer in the theatre) additional ground troops, Roosevelt sought a way of encouraging this renewed effort by providing material help. Moved by Wingate's descriptions of having to leave men behind, Roosevelt saw an ideal opportunity. Declaring that the Chindits would 'not have to walk out this time', he assigned General 'Hap' Arnold to confer with General Wingate to provide the necessary air support.

Arnold agreed on the need to revitalize the CBI theatre, believing that 'the previous campaigns had sapped the will of the British ground troops' and he immediately saw more than just a simple request for light aircraft. He decided that this was a chance to demonstrate the combat effectiveness of his air force and in so doing show the true capabilities of airpower if it could be coupled with a new way of thinking which cut across parochial lines and was solely dedicated to providing the necessary support for his operations. Wingate, it was agreed, would be provided with his own air force. Setting to work, Arnold identified a need for a leader of his new force who would be 'aggressive, imaginative, and endowed with organizational talent of a high order'. Whoever it was would need to share Arnold's vision of what properly used airpower could do. Two men came to mind.

Lieutenant-Colonel Philip G Cochran was an experienced fighter pilot who had fought in North Africa and who was the inspiration for the character of Colonel 'Flip' Corkin in the daily comic strip 'Terry and the Pirates'.[5] Summoned to Washington, Cochran, upset at the thought of missing the P-47 experience in Europe, set out to prove himself the wrong man for the job. Meeting the general, he decided to speak his mind, telling Arnold that he considered the task

> some doggone offshoot side-alley fight over in some jungle in Burma that doesn't mean a damn thing. The big show is in England and I've

> got this job ready to go to over there and I think I can contribute a hell of a lot more with what I know and have been studying for seven years.[6]

Pushing his luck, he explained that he had run into his old friend from flying school, John Alison, the day before and found out that Alison was being considered for the same position. Cochran went on to tell Arnold that Alison was the man for the job because of his experience from his days in China. Arnold, by now tired of his attitude, dismissed him.

Cochran's friend, Lieutenant-Colonel John R Alison, had indeed served in China as part of Major-General Claire L Chennault's American Volunteer Group – the famous 'Flying Tigers'. When Alison arrived to meet General

Philip Cochran

Cartoonist Milton Caniff was old friend of Cochran's from their days at Ohio State University and was approached by Cochran to design an insignia for his squadron. Whilst awaiting approval for the design from Air Forces headquarters, Caniff was invited to watch the squadron perform a display. It was during this that Caniff struck upon the idea of a cartoon strip based around the adventures of a group of daring pilots led by Captain 'Flip' Corkin. The strip was an immediate success and when Cochran's citation for the Soldier's Medal was published and mentioned the connection, he began receiving fan mail addressed simply to Major Philip C Cochran, Army Air Forces, Washington, DC.

Following his death in 1979, his home town of Erie, Pennsylvania, campaigned for a special monument in his honour. Today, it stands on the west side of State Street, just south of the Glenwood Park Avenue turnoff, and next to the World War II Memorial:

COL. PHILIP COCHRAN
(1910–1979)
WWII hero. Cochran distinguished himself as a daring pilot commanding P-40 fighter planes in N. Africa and as the colorful leader of the 1st Air Commandos during the invasion of Burma. He became a colonel at the age of 33 and earned such honors as the Distinguished Service Medal and the British Distinguished Service Order. The Erie native inspired cartoon characters Flip Corkin in 'Terry & the Pirates' and Gen. Philerie in 'Steve Canyon.'

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Arnold, he found Cochran waiting in the outer office. Arnold explained that a special air task force was to operate in support of the Chindits and that one of them was going to have to take the job of forming the group. This time, Alison objected, complaining that he had spent a lot of time training to be a fighter pilot and stating 'I don't think you need me and I don't want to go.' Both Cochran and Alison then each argued in favour of the other being sent until Arnold began to sell the idea in more detail. The project would have the highest available priority, he told them, and they would be given *carte blanche* authority for men and material to enable them to spearhead the entire air operation. As Arnold later put it

> I told both of them that they were going to Burma. Cochran immediately protested that he wanted to go 'where there was some fighting.' I informed him that he would get all the combat he wanted. I explained the unprecedented mission and ordered them to carry it out. 'To hell with the paperwork,' I added. 'Go out and fight.'[7]

Later, both men would recall interpreting what they had just heard differently – Cochran took it to mean 'go over and steal the show', whilst Alison understood it to mean 'transform the Wingate campaign into a new experiment in the use of air power'. Finally convinced, both men volunteered and, believing Alison was the senior, Arnold appointed him commander. When Alison corrected him about their respective seniority, he replied, 'Oh well, make it a co-command.'

They immediately set up an office in a nearby Washington DC hotel. To ensure they were working on the right lines, Cochran was sent to England to confer with General Wingate, who explained his requirements in detail. In return, Cochran promised Wingate any type of aircraft he wanted would be supplied by the new Air Commando organization. On his return to Washington, Cochran passed along concerns about the need to complete the operation before the onset of the next monsoon. If the original plans from the Quebec conference had called for number of light planes to aid General Wingate in support of his troops and the evacuation of his wounded for a period of about six months, the ambitious Cochran and Alison declared they would provide that and more. They wanted to US Air Commando to actually spearhead General Wingate's entire operation. Taking Arnold's vision and promise of unlimited resources to heart, the two men expanded the original plan for 100 light aircraft into a fully integrated and self-contained fighting unit, able to accomplish the entire mission, not just one part of it. Returning to Arnold with their proposal, they watched as he surveyed their work with his deputy, Colonel Vandenberg. Arnold read through it, then looked over to Vandenberg and asked, 'Van, does this thing make sense?' When Vandenberg agreed that it did, Arnold initialled it, slammed it on the table and said, 'All right, do it.'[8]

'Project Nine' became a source of resentment and dread across US air force bases as the best men and equipment were snatched away. Cochran and Alison toured bases asking for the best and brightest volunteers for a mysterious overseas venture for a period of approximately six months which promised lots of excitement, hard work and combat. The response was overwhelming and, as men were selected, they in turn recommended other men whom they had served with and trusted.

Both Cochran and Allison independently thought of using gliders in the operation, Cochran seeing them as a means of flying in artillery for Wingate's forces into jungle firebases and Alison, with his past flying experience in the CBI theatre, saw the gliders as a means to transport Wingate's men into Burma and move them around in the jungle, using the transport planes for both aerial resupply and towing of the gliders. They turned to Major William H Taylor, who was conducting experimental jungle landings in Panama, to lead the glider force. Taylor travelled to Bowman Field, Kentucky, to the advanced glider school to interview over 200 applicants for the 100 places open to volunteers who responded to the call for men who would return as 'dead glider pilots or live heroes'.[9] Among the successful applicants was Flight Officer John L 'Jackie' Coogan, the onetime child film star who had worked with Chaplin and was the former husband of Betty Grable.

In the space of less than three weeks, with the backing of the Chiefs of Staff, the new 5318th Provisional Air Unit, now comprising eighty-seven officers and 436 enlisted men, was formally approved on 13 September 1943. By that time, Cochran and Alison had secured the use of an impressive array of aircraft, including 150 CG-4A troop gliders, 100 L-1 and L-5 light planes, 30 P-51A fighters, 25 TG-5 training gliders, 13 C-47 transports, 12 UC-64 transports, 12 B-25H bombers and even 6 of the new, highly sought-after YR-4 helicopters. By then, the majority of the force had gathered together at Goldsboro, North Carolina, where they were issued with paratroop uniforms and jungle boots and began a six-week commando course. By late October, the orders arrived for the first men to go overseas.[10]

To facilitate the unit's movement, Cochran and an advance party left for India on 28 October, with the rest of the men and equipment due to follow by 1 December. Such was the priority that all members of the unit flew to India, with enlisted men of the Air Commando being given priority over full colonels of other units, and by mid-November 1943, 75 per cent of the unit had arrived. At a temporary base on Malir Airfield near Karachi, the men underwent acclimatization physical training before breakfast followed by lecture periods on a variety of subjects including jungle terrain, health care in tropical climates, communications procedures, weapons and pyrotechnics familiarization, and intelligence briefings from British Intelligence officers.

Equipment, supplies and aircraft began arriving by ship with all of the Project Nine aircraft going to Karachi except the gliders which were sent to an assembly

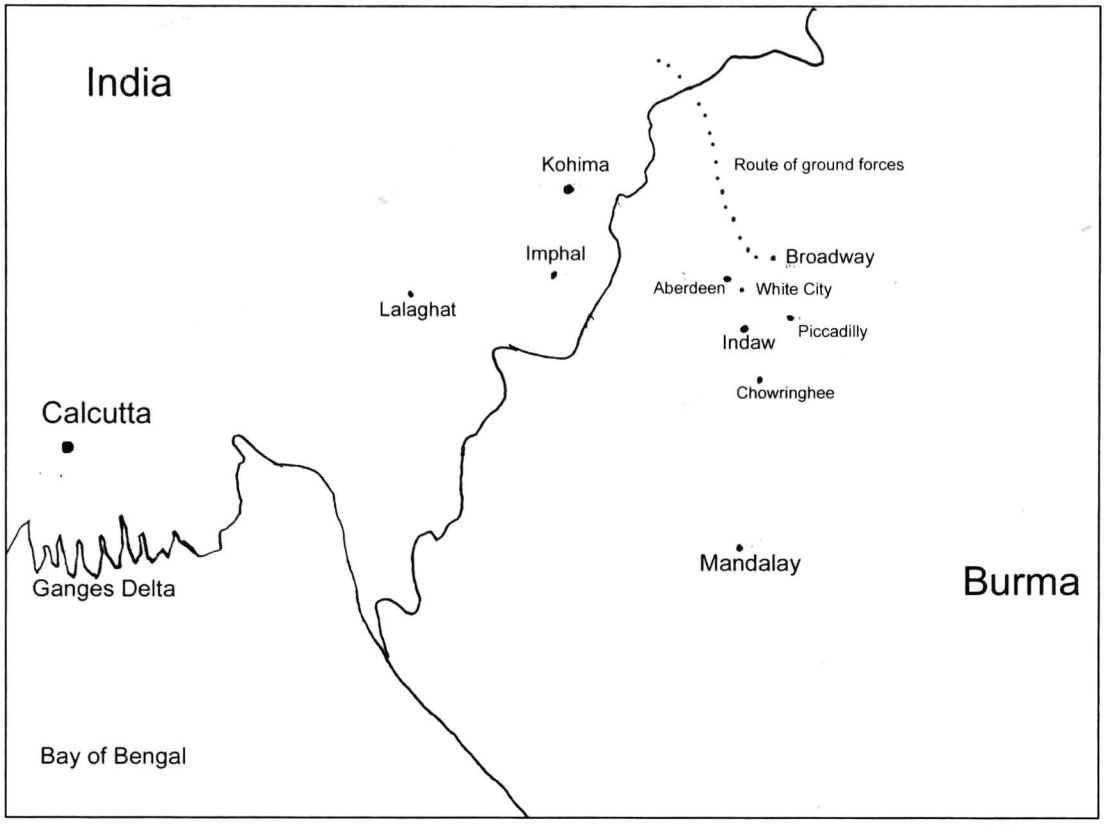
area at Barrackpore Field, a British airbase near Calcutta. The crated aircraft needed to be assembled and, with only a hundred pilots and a similar number of ground crew available, everyone had to work. Arnold would later write an account of the operation for *National Geographic* magazine in August 1944 and described how

> visitors to our installations were confounded by the lack of 'rank.' Morale was high, and there was little paperwork. The men said, simply, 'If Phil or John says we do it, then by God, we do it!' Officers and men, hot, dusty, and bearded, lined up together at the chow lines, ate quickly, and went back to work. They sweated shoulder to shoulder unloading freight cars. For security reasons native help was kept to a minimum. At one base the headquarters was a bamboo hut, and the men slept at night on hard charpoys, or native cots.[11]

The British experience of Allied air support in Sicily meant that, before Wingate could fully trust the Americans, he had to know and understand their capabilities and the extent of their commitment to his forces. The 5318th set out to demonstrate new tactics they had developed for forces operating in the difficult Burmese terrain such as glider tow and pickup operations, aerial resupply and evacuation from difficult locations, and close air support and bombing by both P-51s and B-25s.

In the jungles, the Chindits used mules as transport. With their vocal chords surgically cut to ensure silence (and in some cases light-coloured animals being painted green as camouflage), mules were vital both for carrying heavy loads and, in emergency, as food. Wingate needed to know that the gliders could transport them. A CG-4A was rigged to carry three mules with a mechanic armed with a rifle standing by. Just before takeoff, the pilot reminded the mechanic 'if any one of those three critters starts raising hell up in the sky you shoot him right between the eyes before he kicks our glider apart'.[12] In the coming months, many mules would fly into combat but very few are recorded as having been shot – although toilet facilities proved another issue altogether.

Small-scale exercises were used to demonstrate glider capability, with a squad of troops being landed, setting up snatch poles and then being picked up again by their tow aircraft. Wingate watched the first demonstration before turning to Cochran saying 'I say, that was a jolly good show!' All that now remained was to convince Lord Mountbatten. Cochran set up another demonstration using twenty-four gliders, six mules and a battalion of the Black Watch. After a successful daytime landing, the exercise was repeated at night. Mountbatten, doubting that so many gliders could land with so little noise, was personally driven around each of the twenty-four aircraft, growing amazement evident on his face. The gliders had a new convert and full support.[13]



Burma invasion: Operation Thursday.

The plan called for the British 16th Brigade under Brigadier Bernard Fergussen, to make a gruelling 455 mile march from Ledow in India to 'Aberdeen' – a stronghold in the Burmese jungle twenty-seven miles from the village of Indaw, resupplied entirely by Cochran's men. Four weeks later, Brigadier Michael Calvert's 77th Brigade would make a night landing in gliders at two other strongholds named 'Piccadilly' and 'Broadway'. At the same time, Brigadier Walter Lentaigne and the 111th Brigade would make a night air landing into another stronghold thirty-five miles from Indaw, codenamed 'Chowringhee' after Calcutta's famous street. Each site was deep in the jungle and had large open spaces to facilitate a landing. Finally, 14th Brigade, led by Brigadier Thomas Brodie, together with the 3rd West African (Nigerian) Brigade under Brigadier Gilmore, would be flown four weeks later by C-47 to newly created landing strips around Indaw.

Operations moved to two British forward bases near Imphal in January 1944, with the fighters, bombers, light planes and the headquarters staff located at Hailakandi while the transports and gliders went to Lalaghat. Training was stepped up throughout January with all sections participating in demanding unit training exercises to smooth out all the rough edges and to develop relations with the Chindits. It was at Lalaghat that Jackie Coogan was to discover another hazard of glider operations in India. A flight of ten gliders had just landed after

a training exercise and were waiting on the runway for the base's lone jeep to tow them to their dispersal points. The heat in the cockpits was unbearable so Coogan decided to pay one of the Indian labourers to use an elephant to tow his aircraft. The elephants were being used to move heavy logs on the airfield and the glider presented no great challenge to its strength. All went well until the elephant suddenly panicked – possibly seeing what seemed to be the shadow of a giant bird behind it – and began to run straight into a stand of trees, tearing off the glider's wings as the combination crashed into the dense forest.

Fergussen's 16th Brigade had been marching for two weeks when the Air Commando Group began practising landings for Broadway and Piccadilly with the men who would undertake the assault. Shortage of tow aircraft meant that the gliders were on double tow, two to each tug. During a night exercise, a glider broke free, killing four British soldiers, two pilots and a mechanic. Saddened by the loss of their friends, the glider pilots also worried about losing the confidence of the British. The next day, however, Major Taylor was relieved to find a note from the Chindits' commanding officer saying 'please be assured that we will go with your boys any place, any time, anywhere'. So proud were the commandos of this endorsement that it was adopted as their motto and remains the slogan of US Special Air Operations groups today.[14]

On 3 February 1944, air commando fighters and bombers began attacks on Japanese positions in Burma prior to the coming invasion that showed the versatility of the Air Commando. P-51s were fitted with rocket firing tubes and other fighters towed a dangling weight at the end of a cable to snag on telephone wires and tear them down. The light aircraft were used as spotter planes, finding likely targets and then leading attack planes to the location before dropping smoke to mark aiming points. These aircraft also carried adapted bomb racks to enable them to drop ammo, food, water and medical supplies to the Allied forces on the ground and were also called into action to evacuate sick and wounded men from the front lines, carrying more than 700 wounded men back from the battle area between 10 February and 6 March alone.

The success of the Air Commando meant that morale was high, perhaps too high. According to the unit history, the phrase ' "Blow it out – I'm from Project 9" was a sore spot at every [Air Training Command] base from Florida to Karachi.'[15] Although Cochran and Alison had gained the support of the highest levels, their success did little to impress the more traditionally minded air force commanders. In particular, Cochran and General William Old – commander of Troop Carrier Command (TCC) – had clashed. As the invasion got under way, Old complained about what he saw as lax standards among the men of the Air Commando. At Lalaghat on 5 March 1944, Old complained that Cochran's men showed no interest in dress and appearance. The men were not in uniforms, were growing beards, failed to salute and officers shared eating facilities and latrines with enlisted men. In response, Cochran issued an order to his men:

To: All Personnel and Attached Organizations.

Look, Sports, the beards and attempts at beards are not appreciated by visitors.

Since we can't explain to all strangers that the fuzz is a gag or 'something I always wanted to do' affair, we must avoid their reporting that we are unshaven (regulations say you must shave) by appearing like Saturday night in Jersey whenever possible. Work comes before shaving. You will never be criticized for being unkempt if you are so damn busy you can't take time to doll up. But be clean while you can.

Ain't it awful?

P.G. Cochran

Colonel, Air Corps,

Commanding.[16]

As the complaint came in, Cochran and his men had far more pressing concerns. The invasion of Burma was scheduled for early March, dependent on weather conditions. In February, the first glider mission of the war in Southeast Asia had inserted a sixteen-man patrol in a single aircraft on the east side of the Chindwin River and although four people were injured during the landing, the patrol successfully carried out its mission and the pilot walked back with them to the base fifteen days later. A second mission delivered nearly 8,000 lb of river crossing equipment, including folding boats, outboard motors and fuel, to a sand bar on the east side of the Chindwin near Singkaling Ekanti in support of a river crossing. The two gliders were collected the next day by snatch pickup. It was a good start.

Finally, on Sunday, 5 March 1944, after receiving favourable weather predictions, Air Vice Marshal Baldwin, the overall air commander, gave the order to go. The plan had originally intended for flights to start at 1740hrs with two pairs of gliders, both separated by a two-minute interval, departing the airfield – one pair heading for Piccadilly, the other Broadway. Twenty minutes later, more would begin lifting off with flights alternating between the two landing zones. Because there were only twenty-six tugs available, the rest of the glider force would wait until the transports returned from their first trips. As his men gathered for their mission briefing, Cochran gravely told them 'Nothing you've done, nothing you're ever going to do counts now – only the next few hours. Tonight you are going to find your souls.'[17]

Wingate wanted to achieve complete surprise and felt that any reconnaissance of the area might alert Japanese forces so ordered flights over the proposed landing sites should stop before D-Day itself. Captain Charles Russhon, the Air Commando's intelligence officer argued against it and eventually persuaded Cochran to allow one flight – without Wingate's knowledge. When the photographs came back, they showed that Broadway was clear but at Piccadilly (where the Chindits had operated before) the Japanese had dragged hundreds of

logs across the open areas and laid a minefield in the middle of the area in case they returned. With forty minutes to go before takeoff, a hasty conference met to consider the options. Cochran, Alison and Wingate all agreed to send all the gliders into Broadway. As Cochran later put it; 'our decision was easy, really. . . . [If] those British soldiers had that kind of guts, and that kind of heart that they were going forward and going in there, it was up to us to take them in.' Calling his men together, Cochran cheerfully told them 'Boys! We've found a better place to go to!'[18]

Both Cochran and Alison had wanted to lead their men on this mission but eventually Alison had been able to convince Cochran that one of them had to stay behind with Wingate and that it should be the senior officer. Reluctantly, Cochran agreed and Alison, who had never flown a glider, spent the day before the invasion practising his landings. Now he would lead the initial glider assault into Broadway.

With all aircraft now tasked for Broadway, the first C-47 with two heavily laden gliders lifted off smoothly at 1812hrs. Almost immediately, though, problems began to surface. Broadway was over 200 miles behind enemy lines and the Chindits were taking no chances. Most carried more ammunition than the CG-4A's designers had expected and the overweight aircraft struggled to make height. When they did, turbulence around the mountains put additional strain on the tow ropes and several broke. Four gliders had crashed soon after takeoff because of broken towropes, three more broke loose on the east side of the Chindwin River and another two went down near the Irrawaddy River. Clearly, the double tow was not safe so Cochran ordered the use of use single tows for the rest of the operation, slowing down the insertion.

Almost as if planned, some of the lost gliders had landed inside the Japanese lines, creating an impression that an Allied attack was being made across several

John R Alison

Co-founder of the US Air Commando, Alison went on to set up two more similar formations and ended the war as operations officer for 5th Air Force, participating in the landings in the Philippines and in the air operations against Japan from Okinawa.

After the war his hometown of Gainesville, Florida, took over the military base there as a civilian airport, naming it after Alison. He served as an Assistant Secretary of Commerce, and as a major-general in the Air Force Reserve, retiring as vice president of the Northrop Corporation in 1984. In 1996 he was invited to give the keynote speech at the US Air Force's fiftieth anniversary convention as exemplifying the spirit of the service. He finally gave up working out in the gym three times per week at the age of 87.

areas. A later report claimed that 'the tactical advantage that must have resulted from the enemy being confused and bewildered at the idea of striking forces at ten different places in his rear was tremendous and gave impetus to the operation's success' but for the men aboard the gliders, the situation was desperate. Glider 19B, one of the early double tows, was piloted by Flight Officer Martin McTigue and carried men of the 1st King's (Liverpool) Regiment. At 7,500 feet, McTigue suddenly shouted that they had been cut loose and began circling to try to find an area to land. Finally, steering towards two high trees in the hope that they would act as a brake, he brought the glider down in thick jungle. Twenty-one-year-old Arthur House, one of the passengers, recalled what happened next:

> although we had been thrown about like rag dolls there was no panic at all. I kicked the glider door open and we stumbled out into the jungle. We were all badly shaken and nursing cuts and bruises . . . The pilot had no idea how far we might be from Broadway and as we had no maps (Sergeant) McGee decided our best chance of survival would be to head due west and try to march back towards the Chindwin River. This meant at least 150 miles through Japanese territory . . . [19]

In the co-pilot's seat had been the battalion's chaplain, Burmese-speaking former missionary Captain Patterson, but he had been killed in the crash. After burying him, the men set out on what would become a month-long escape through thick jungle, struggling through swamps and rivers and barely escaping their Japanese pursuers. After two weeks, the men ran into an ambush and, according to House, 'we were forced to scatter. I found myself on my own and could hear the Japs raking the undergrowth with their bayonets. How they missed me I'll never know.'[20] As the men regrouped, they found that McTigue and four others were missing. Later, the sole survivor was able to report that the pilot had been executed shortly after capture and Sergeant King, Privates Booth and Blundell all died in captivity. When the rest finally reached Imphal, they found it under attack by the Japanese and crouched in the jungle as the enemy fell back past them. House, the only member of the party fit enough to return to his regiment, would not rejoin them until July, four months after setting out for Broadway.

As their ordeal began, the first tow planes had arrived over Broadway. Shortly before midnight, the first pathfinder gliders, flown by Major Taylor and Colonel Alison, released and swooped down to land without incident to secure an area that had been identified as a likely ambush site. Soon, the rest began to arrive but it was only then that the dangers hidden in the tall grass made themselves apparent. Logs and deep log trenches littered the field, ripping off the glider undercarriages as they landed and creating a pile up as following gliders crashed onto those who had landed earlier. It was Alison's nightmare. Frantically, he and his crews ran across the landing zone reconfiguring the marker beacons in order

to try to bring the gliders in to relatively safe areas. The brigadier was seen carrying smoke pots to where a corporal directed him in a race to minimize the chaos. With the Broadway landing zone quickly becoming blocked by wrecked gliders, Alison realized that the second wave would have no chance to land and so told his radio operator inform Cochran in India that they could not accept any more gliders until they could clear the field. In the confusion, the radio operator instead sent the prearranged 'Soya-Link' message indicating that the invasion force had met with disaster. The signal was received by an airborne C-47 and relayed back to Lalaghat, reaching Cochran and Wingate at 0227hrs. Believing that his men had met heavy resistance, Cochran's first reaction was to order in the rest of the force in an attempt to support the troops on the ground and win the battle but he was overruled by Wingate. Fearing heavy losses among his men, Cochran was devastated.

At dawn, Alison reviewed the situation. Of the fifty-four gliders not recalled during the night, thirty-seven had reached Broadway, carrying with them 539 men and 29,972 lb of equipment, including three bulldozers, airfield lighting apparatus and three pack mules. Eight aircraft had landed in friendly territory on the western side of the Chindwin River but of the nine that landed on the east side in enemy territory, two had been released just short of Broadway and had crashed in the jungle, killing all but two of their occupants. The fate of two gliders and their crews has never been discovered. In Arnold's August 1944 article for *National Geographic*, he wrote:

> Most of the crews landed in enemy territory escaped to safety. One medical officer, a glider pilot, and co-pilot, with 15 native troops, walked 85 miles to Broadway in ten days. Out of food at one point, they tossed a hand grenade into a pond and killed 60 fish. There was a soldier hero in one crew whose men were crossing a river in Jap-held territory. This man drowned rather than call for help and thus endanger the lives of his friends.[21]

So far, only thirty men were killed and thirty-three injured in the first night's operations. Looking around the landing zone strewn with wrecked gliders, Alison wondered whether their task of building an airstrip could really be achieved. Assured by the acting Airborne Engineer commander that it would be possible, he asked how long it might take. 'Well, if I have it done by this afternoon,' the engineer replied, 'will that be too late?'[22] True to his word, by 1620hrs that day Alison was able to send a message to base that 4,700 feet of runway would be ready that night for C-47 operations. An hour later, aircraft began to take off from Lalaghat and by 2111hrs, all of the Lalaghat aircraft had left and those from Hailakandi were on their way. Alison had organized the new airfield so well that on the first night sixty-two C-47s were able to land at Broadway.

Twenty-four hours after the first aircraft left, Wingate decided to move up the

date for the second phase, believing that a counterattack against Broadway was likely. The second base, Chowringhee, was to be established fifty miles south of Broadway and, although it was recognized as being more vulnerable to enemy air and ground attack, with Piccadilly gone it was vital to open a second airfield.

That night, guided by a full moon, gliders landed at Chowringhee with only one serious incident. Unfortunately, the two fatalities of the insertion occurred when the special equipment glider carrying the heavy bulldozer for airfield construction and the radios for contacting the headquarters at Hailakandi crashed on landing. As Cochran arranged for another bulldozer to be flown in from Calcutta, Alison got the now redundant bulldozer from Broadway delivered. As before, the Airborne Engineers demonstrated a real dedication to the task ahead of them. The bulldozer flown in from Broadway was put straight to work until, as the official history reports; 'Fatty, the dozer driver, who had been operating his machine for 42 hours, finally collapsed while his machine continued to roll on and he was pulled off safely.'[23]

Back at Broadway, inbound flights were now increased to sixteen per hour, the maximum Alison thought could be handled safely. Ninety-two C-47s landed that night and the official report commented that

> nobody has seen a transport operation until he has stood at Broadway under the light of a Burma full moon and watched Dakotas coming in and taking off in the opposite direction on a single strip all night long at the rate of one landing and one takeoff every three minutes.[24]

Air strikes against Japanese airfields by the fighters and bombers of the Air Commando during 8 March were highly effective, dramatically reducing the threat to the inbound supply aircraft so that by the fourth night of the operation Broadway was able to accept eighty-five C-47s and Chowringhee another seventy-eight. The next night, Broadway managed ninety-five but Chowringhee reduced its number to the forty needed to complete the planned insertion of the equipment and personnel for that location. Its mission accomplished, Chowringhee was abandoned at 0800hrs on 10 March. That evening the empty site was attacked by the Japanese who, surrounded by the wreckage of the gliders, claimed a decisive victory. Having intercepted the message Air Commando fighters and bombers then pounced on the Japanese as they tried to work out what to do with their newly acquired position.

Operation Thursday was drawing to a close. Planners had decreed that another 129 C-47 missions would be needed to complete the insertion and every effort was made to finish the job. The last four flights arrived on the night of 11 March, by which time some 579 Dakota and seventy-four CG-4A Waco glider sorties had landed 9,052 men, 1,359 animals, 255 tons of supplies, a Bofors anti-aircraft battery and one 25-pound field gun battery, with the loss of a single C-47 which struck a water buffalo when taxi-ing. Of all the Air Commando crews, the glider

pilots had suffered most. Fourteen had been killed and 90 per cent of their aircraft written off. After making certain that the Allied troops were in place and no longer under serious threat of counterattack, Cochran cabled Arnold that 'The aerial invasion of Burma was strictly an air show.'[25]

On 22 March, a Japanese offensive in the Assam area brought a call to reinforce Wingate's in-place forces by inserting the 14th and 3rd West African Brigades into the Aberdeen base in the Manhton area as well as White City at Mawlu. At Aberdeen (named after the hometown of Wingate's wife) ground forces had already built a glider landing strip so the plan was to develop this into an airfield for resupply transport flights. Gliders landed construction equipment and the strip was soon operational but two Transport Command aircraft overshot on landing and crashed, and one RAF aircraft was shot down. By now the Air Commando transport crews were feeling left out of the action and so began to carry three-inch mortar bombs, fragmentation clusters and incendiary bombs to throw out at any targets they might happen upon as they flew their assigned tasks. As one pilot put it 'we may not have done any damage but I'll bet we scared the hell out of them'.[26]

As the air operation began to wind down, Wingate signalled his men triumphantly to tell them 'our task is fulfilled. We have inflicted a complete surprise upon the enemy. All our columns are inside the enemy's guts . . . Let us thank God for our great success.' Not everyone, though, was under Wingate's spell. The War Diary of the 2nd Battalion of the Leicestershire Regiment notes simply 'long message from Force, impossible to decipher, but something about guts and God'.[27] Within weeks, Wingate was dead – killed when the B-25 he was travelling in crashed into a mountainside. His death meant that the driving force behind his vision was gone but he had proved his ideas could work.

Air Commando operations were expected to be over by May but the British asked for help in opening another airfield near Pinbaw and the exercise that had worked so well at Broadway and Chowringhee was repeated. By now, though, the Air Commandos were beginning to show the strain of the heavy workload and difficult living conditions. Malaria and exhaustion had reduced their effectiveness and, on 19 May, the last Air Commando flights in support of the Chindits took place. Cochran, Alison and their glider pilots had accomplished an enormous amount in a short space of time. The effect on the morale of the ground troops was a significant factor in the eventual success of the invasion of Burma and, as one observer later wrote; 'Col. Cochran and his men have fulfilled every requirement originally demanded of the air unit in the Wingate Plan and a great many more never believed possible.'[28]

Operation Thursday marked the peak of glider operations in the Far East. Other, smaller operations would be undertaken, such as the landing of heavy equipment to develop the runway at Luzon in the Philippines, but for the most part they were non-combat missions. One CG-13 glider was used to fly a general's staff car from base to base across thousands of miles and another

CG-4A to rescue the survivors of a plane crash in central New Guinea but, for the most part, the pilots were used for routine resupply. Then, in late 1944, rumours began to circulate about the biggest airborne operation yet – the invasion of Japan. Back in the United States, orders had been placed for 1,000 of the new CG-10 'Trojan Horse' gliders capable of carrying forty men or a jeep and howitzer, ready for the attack. The 11th Airborne Division was undergoing intensive training for the invasion in Manila when the atomic bombs devastated Hiroshima and Nagasaki. Two weeks later, the division and some of its attached glider pilots arrived peacefully in Japan as part of the occupation forces.

During the war, Japan, having briefly experimented with glider use in Manchuria in the late 1930s, developed its own airborne forces with German advisers and established a Glider Infantry Regiment, but although American forces at Luzon found cargo carrying Ku-8 'Gander' gliders on Nichols Field the *guridas* do not seem to have been used operationally other than for resupply.

As glider operations were beginning to prove their worth in Burma, the Commanding General of the Transport Carrier Command recommended developing protocols for their design and procurement, establishing a system for communication between the tug and glider, recovering landed gliders by aerial pickup and utilizing gliders as resupply vehicles. No one, though, gave much thought to their use in combat. Even as US glider pilots had prepared to go into action for the first time in support of their British colleagues in Sicily, their role after landing had not been completely thought through.

> The role of the glider pilot in combat will be primarily to land his glider safely, expedite the rapid debarkation of his passengers, secure his glider on the ground, assure that transport which may land after the glider-borne troops have secured the airdrome or locality to permit reinforcement by transport-borne troops. The glider pilot will participate in ground combat only in exceptional circumstances or after his glider has been wrecked in landing. [29]

The expectation appeared to be that he would return via army routes to his unit and training focused almost exclusively on the technical aspects of maintenance and 'the safe and proficient operation of the CG-4A glider'. In upcoming European operations in Holland and Germany, many American pilots, once they had landed their loads, simply left the battle area and went off exploring the delights of nearby towns and cities. If the glider-borne troop were to be used only as aerial truck drivers, this philosophy might have worked. However, as part of an assault airborne force, their fate was in their own, largely untrained, hands. In marked contrast to British and German pilots, it was not until 1945 that US glider training directives discussed combat missions and introduced weapons and combat team training as part of glider pilot syllabus. In 1943, five months

after the invasion of Sicily, I TCC highlighted major problems with the training provided by Flying Training Command's glider programme, including even basic flight techniques and 'insufficient combat team training to function and NOT be a liability'. In Europe, the image of the glider pilot as truck driver would soon be dispelled.

Chapter Seven

Over the west wall: Europe 1944–1945

Operation Tonga: the British airborne assault on Normandy, 6 June 1944

The time was seven minutes past midnight. At 6,000 feet over the French coast, tug pilot Wing Commander Duder wished them luck and released the cable. In the cockpit of PF800, a Horsa glider with the chalk number 91 carrying men of the Oxford and Buckinghamshire Light Infantry, co-pilot John Ainsworth peered at his stopwatch, counting down the seconds; 'five . . . four . . . three . . . two . . . one . . . bingo, right turn to starboard onto course'. Pilot Jim Wallwork looked around and could see the moonlight glinting off the surface of the river and canal below him. He recalled:

> So then, to hell with the course. I knew my height; I knew how far away I was, so it was a case of by guess and by God from then on. I didn't complete the crosswind leg, so I bowled down and landed rather quickly. There was a feeling of the land rushing up and I landed probably at about ninety five instead of at eighty-five, and ten miles per hour in the dark looks like a lot.[1]

As the glider hit the ground, Wallwork shouted 'Stream' and Ainsworth released the arrester parachute which lifted the tail, forcing the nose into the ground. As they hit, the impact tore off the wheels and bounced the glider back into the air but the parachute did its job and they hit the ground again; this time on the skids. Wallwork shouted 'Jettison' and Ainsworth pressed the button to release the parachute. The glider had slowed but was careering along the ground at sixty miles per hour in a shower of sparks that made its passengers think they were already under fire. Eddie Edwards, one of those aboard, recalls:

> There was the usual slight bump, a small jerk and a much heavier thump, as the glider made contact with the ground, but only for a moment. It jerked again, shuddered, left the ground for a second or two, bumped over the rough surface and lurched forward like a bucking bronco. We sped forward, bouncing up and down on our hard wooden

> seats as the vehicle lost contact with the ground, then came down again with another heavy thump, a tug and a jerk. For a few moments it appeared that we were in for a comparatively smooth landing, but just as that thought flashed through my mind the darkness filled with a stream of brilliant sparks as the glider lost its wheels and the skid hit some stony ground. There followed a sound like a giant canvas sheet being viciously ripped apart, then a mighty crash like a clap of thunder and my body seemed to be moving in several directions at once. Moments later the crippled glider skidded and bounced over the uneven ground to slide finally to a juddering halt, whereupon I found myself perched in a very strange position at an uneven angle. I peered into a misty blue and greyish haze. From somewhere out in endless space there zoomed towards me a long tracer-like stream of multicoloured lights, like a host of shooting stars that moved towards me at high speed. I realized after a moment that I was not being shot at. I was simply concussed and seeing stars! The noise from the landing had ceased very suddenly and was replaced by an ominous silence. No-one stirred, nothing moved. My immediate thought was 'God help me – we must all be dead' . . . The exit door had been right beside my seat. Now there was only a mass of twisted wood and fabric across the doorway and we had to use the butts of our rifles to smash our way out.[2]

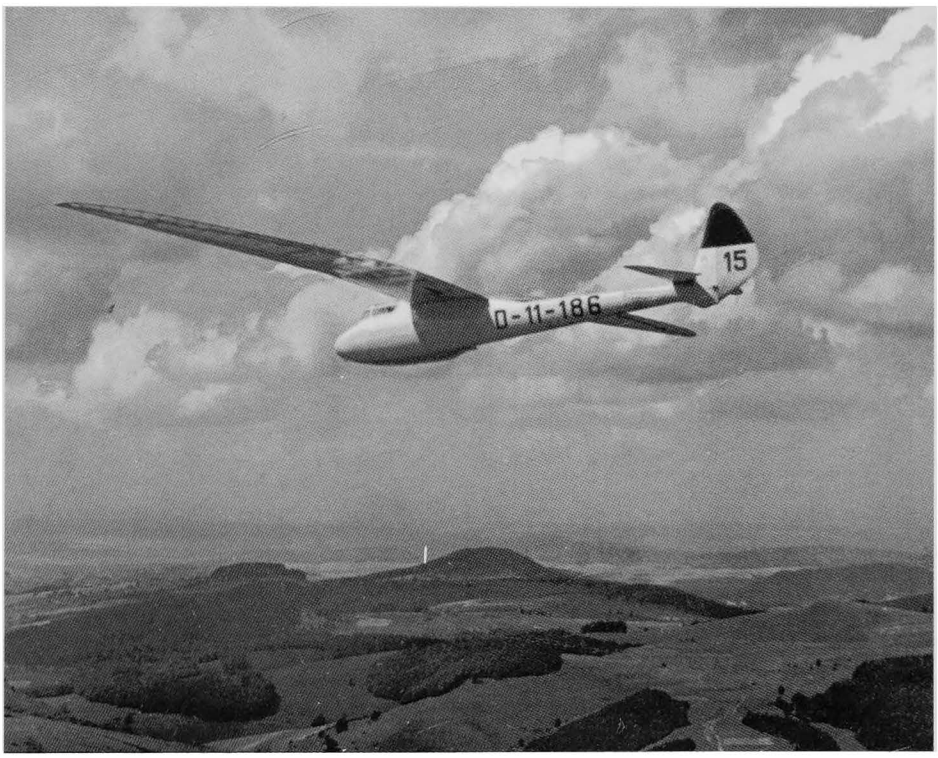
The glider had come to rest within yards of its target, the impact so great that both pilots had been hurled through the windscreen. Jim Wallwork

> went over headfirst and landed flat on my stomach. I was stunned, as was Ainsworth; I came around and he seemed to be in bad shape. I said, 'Can you crawl?' and he said, 'No,' and then I asked if I lifted, could he crawl out and he said, 'I'll try.' I lifted the thing and I felt that I lifted the whole bloody glider when probably all I lifted was a small spar, but I felt like 30 men when I picked this thing up and he did manage to crawl out.[3]

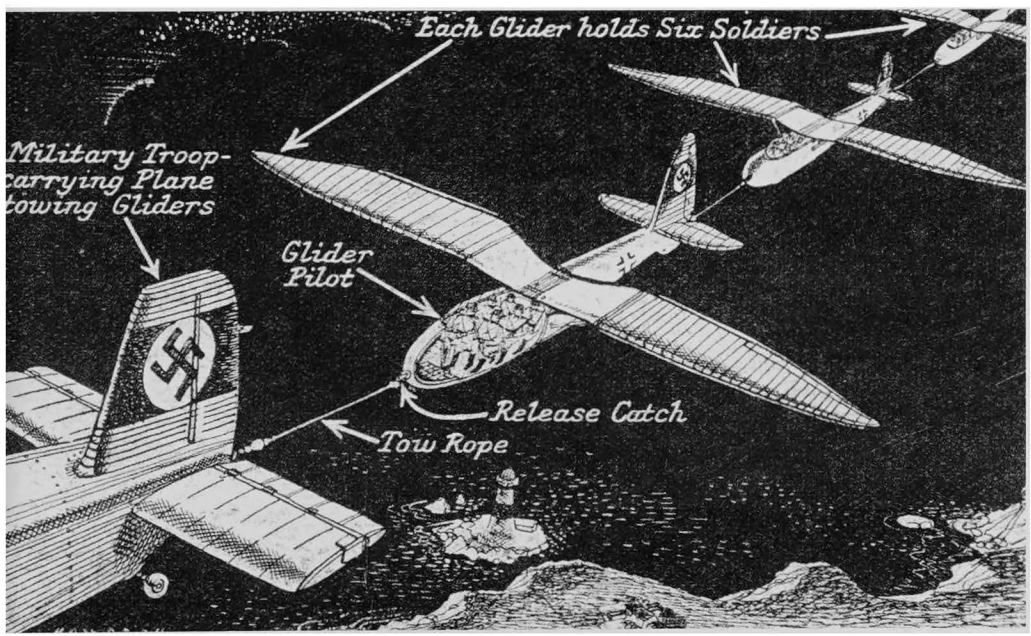
It was 0016hrs on 6 June 1944. D-Day had begun.

Hitler's Directive No. 40 of March 1942 ordered work to begin on what would become the 'Atlantic Wall' of 'Fortress Europe'. Under the direction of Fritz Todt, who had designed the Siegfried Line (*Westwall*) along the Franco-German border, thousands of forced labourers were put to work constructing huge concrete fortifications along the Dutch, Belgian and French coasts facing the English Channel with the aim of smashing any invasion attempt either on the beaches or immediately inland by a combination of strong defensive fortifications to delay an invasion and mobile forces inland, who would provide a massive armoured counterattack against the invaders once they had reached far enough

In the years immediately after the First World War, German gliding enthusiasts took to the air in very basic aircraft, often home-made. *(Author's collection.)*

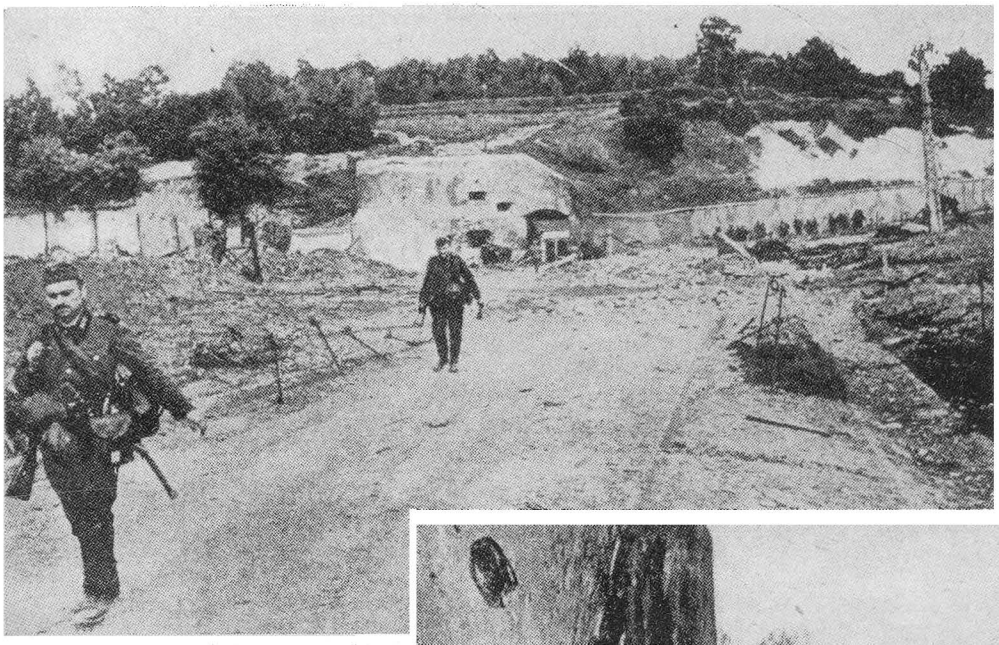


As gliding developed as a sport, designers like Messerschmitt rapidly improved the performance of aircraft like this Condor II a glider seen during a flight over the Wasserkuppe. *(Author's collection.)*



An artist's impression of how gliders might be used against Britain.

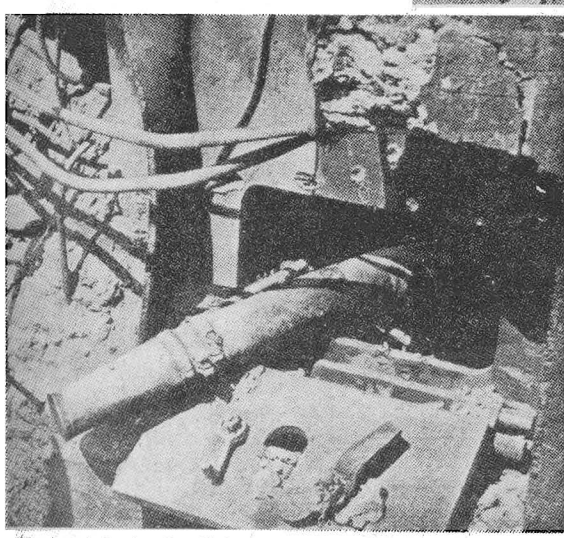
The Nazis Show Us How They Took Eben-Eymael

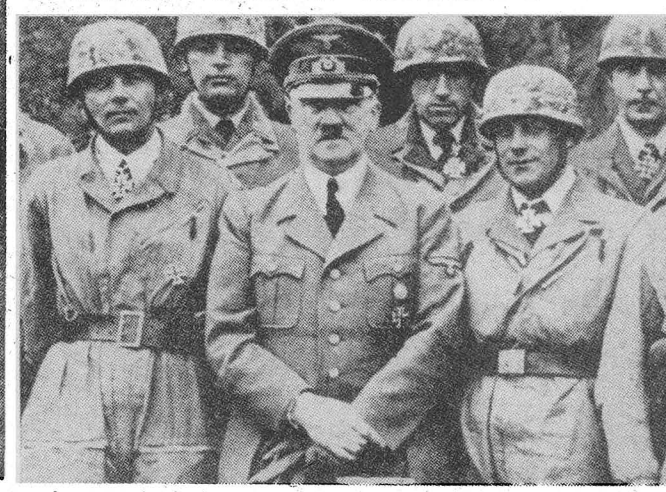


German parachutists working under the protection of their own machine-guns paralysed the Belgian infantry defending the approaches to the fort. They also bored holes for mines in the massive concrete walls and eventually blew up the fort. Nazi soldiers are seen, left, by the partly destroyed fort.

On May 11 the German troops finally attacked the fort, after a terrific onslaught had been made by Nazi 'planes, which bombed and machine-gunned the garrison. The heroic struggle ended in a Nazi victory and the capitulation of the commander with 1,000 men. Some idea of the intensity of the attack can be gauged from the photograph below, which shows part of the damaged wall of the fort.

MOST powerful and modern of the forts of Liége, Eben-Eymael covered more than 200 acres and had an armament of two 12-centimetre guns (about 4·7-in.), over 30 of 6·5 and 7·5 cm., besides a large number of machine-guns, etc. Of its impregnability Belgium's military experts were convinced, and yet only a few hours sufficed for its capture by the Nazis. At first it was said that their parachutists descended on the cupola and threw hand grenades into the interior, but these photographs, reproduced from the German publication "Die Wehrmacht," prove rather that it was the severity of the aerial bombardment, combined with the mines laid by the parachutists, which broke the garrison's resistance, thus enabling picked storm troops to take the fort by assault. A Belgian soldier wounded in the defence of the fort confirmed the main outlines of the story.





The loop-holes in the thick concrete walls of Eben-Eymael were shattered as a result of mine explosions which went off with such force that the guns were broken out of their mountings. On the right, we see Hitler surrounded by some of the captors of the fort, who are proudly wearing the Iron Crosses awarded by the Fuehrer for their exploit.

How the British press reported the attack on Eben-Emael.

The victors of Eben Emael. (L-R) Lt Delica, Lt Witzig, Captain Koch, Lt Zierach, Hitler, Lt Ringler, Lt Meissner, Lt Kiess (glider pilot commander), Lt Altmann, Lt Jager.

German airborne machine gun team in action.

German infantry at Eben-Emael after the attack

A Kirby Kite prepares for takeoff. This type formed the nucleus of the British glider programme in 1940. *(Author's collection.)*

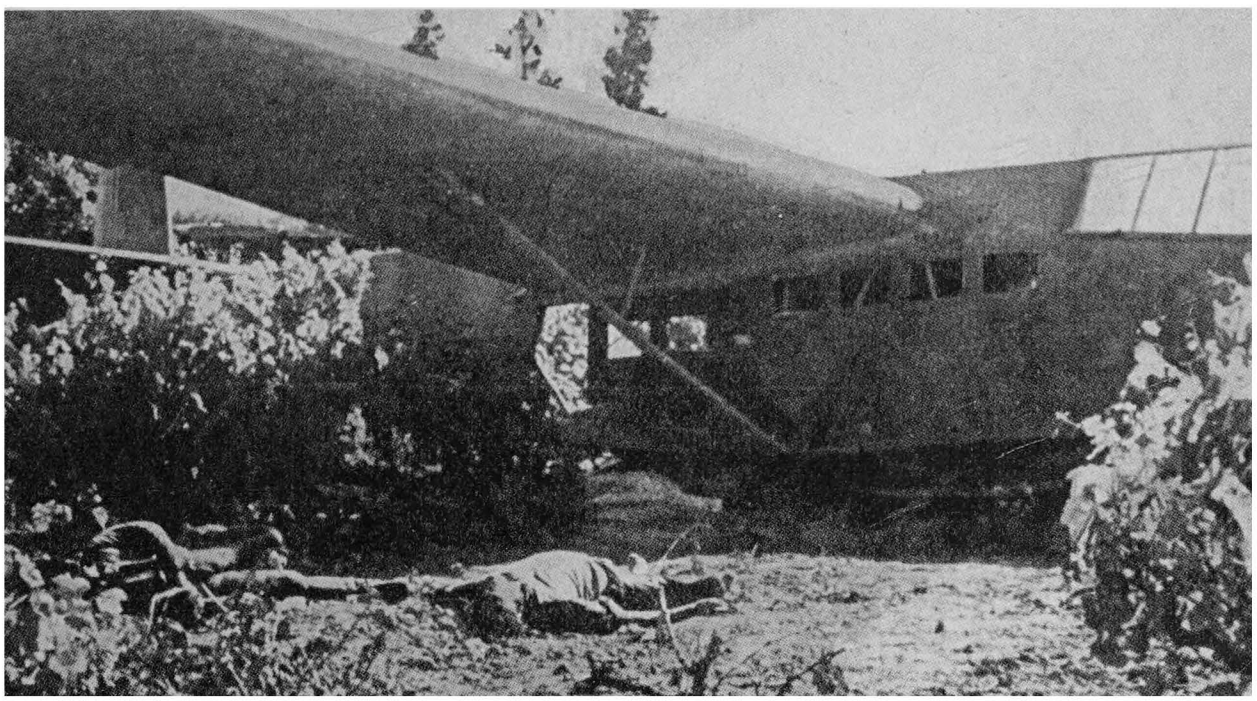
The King inspects the newly formed airborne force after a demonstration drop, 25 May 1941

A Hotspur training glider prepares for launch. Instructor Warrant Officer John Guest (wearing his best 'blues' in honour of the occasion) at Easter 1945. (*Eagle*.)

ritish troops in training with the Horsa
lider

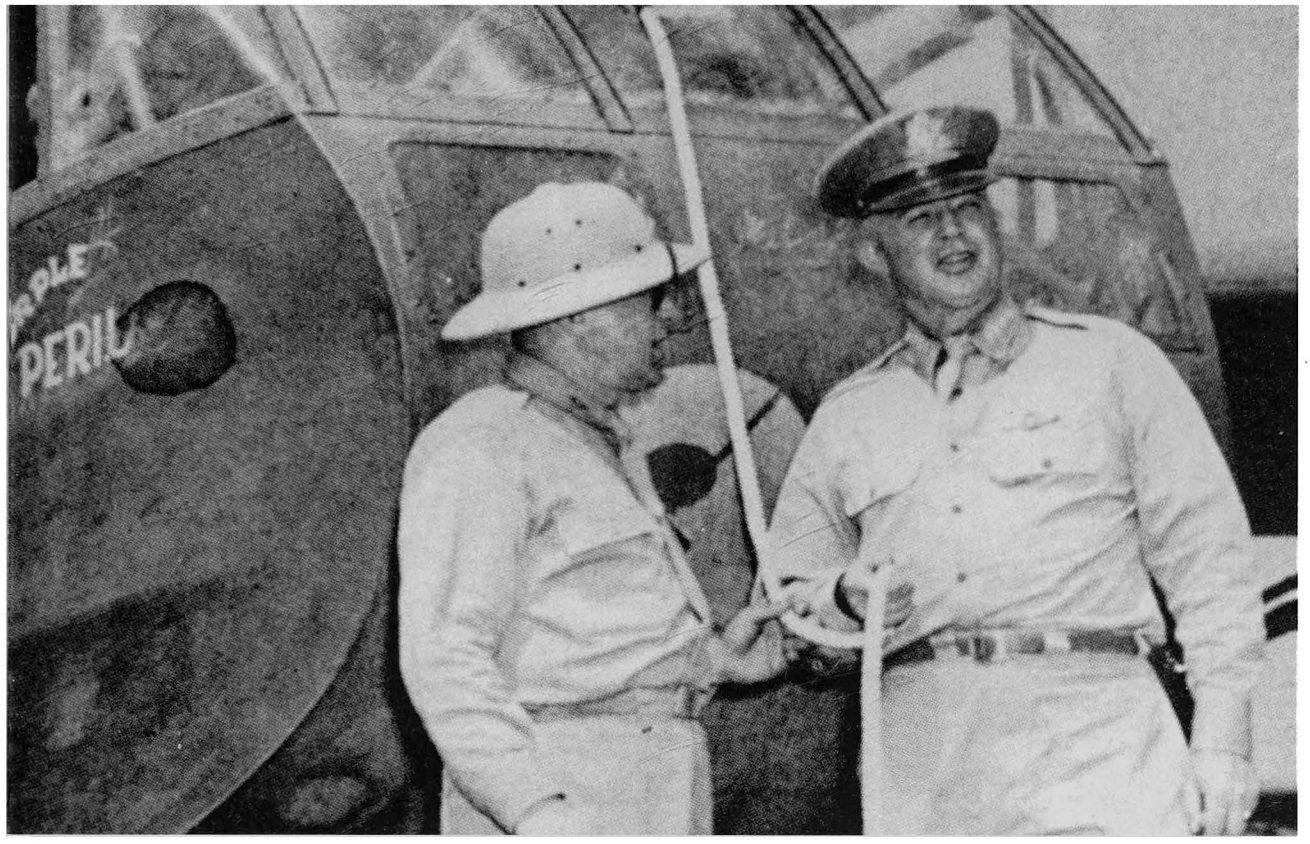
he Airspeed Horsa coming in to land.
Author's collection.)

rete: a crashed DFS 230 and its crew.



General Kurt Student, founder of the German airborne forces.

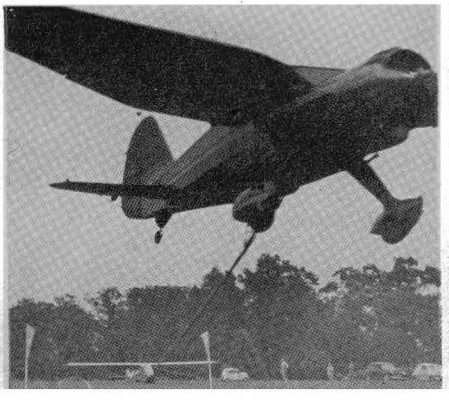
After the invasion, aircraft and gliders litter Crete's Maleme airfield



General Henry H 'Hap' Arnold (right) inspects the towrope of a CG-4A glider, August 1944. These nylon ropes were the main cause of the stocking shortage during the war – each 300ft rope contained enough nylon for over 1600 pairs.

Loading the Waco. Smaller than the British gliders, the Waco could carry a jeep or a gun. It was believed that the combination could be delivered by landing gliders side by side. Although it worked in theory, in combat it was a very different story. *(Author's collection.)*

A glider 'snatch' pickup demonstration in the US. The technique had been used successfully by the US postal service and was later adapted to pick up undamaged combat gliders such as the Waco and Horsa from their landing sites.

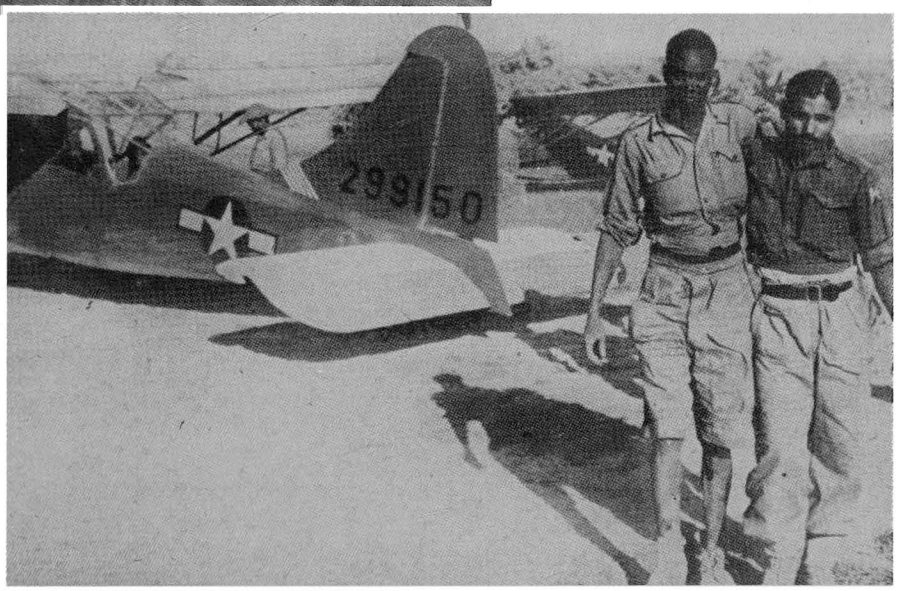


A wrecked German Go242 glider in the North African desert. Glider resupply to the Afrika Korps took a heavy toll on the vulnerable tow combinations.

An Me323, the powered variant of the Me321 Gigant glider, comes under attack as it crosses the Mediterranean. Fourteen were destroyed in a single ambush by Allied fighters and the news reached Britain just as British gliders were about to embark on the epic ferry operation to North Africa.

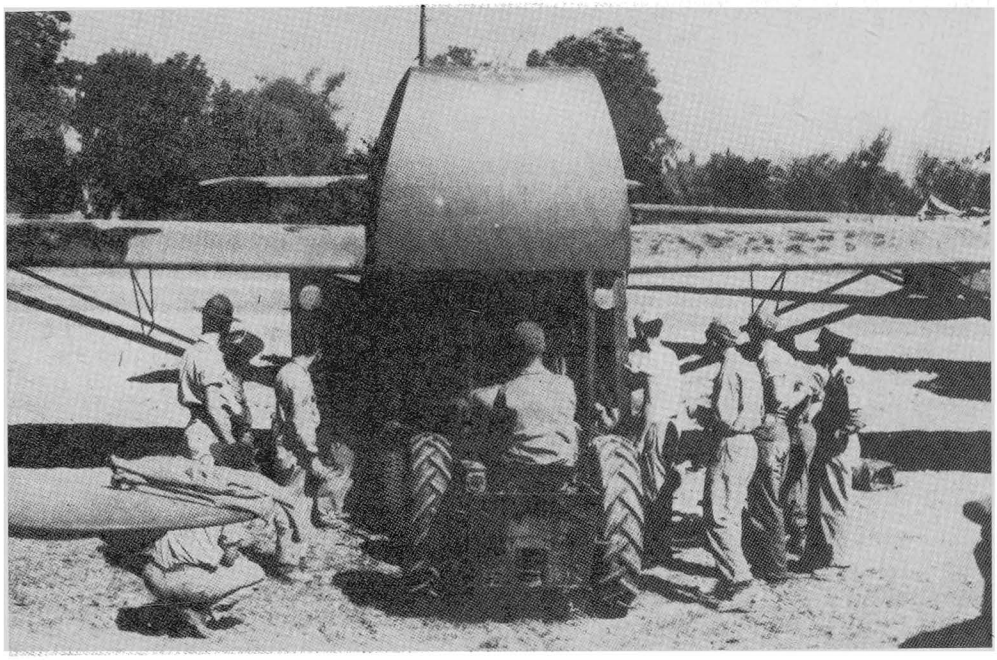
Skorzeny's men prepare for their mission.

Germany's 'most dangerous man', Otto Skorzeny (3rd from left in peaked cap) escorts Mussolini to safety following the daring glider-borne rescue mission ordered by Hitler. (*Signal* magazine, autumn 1943.)

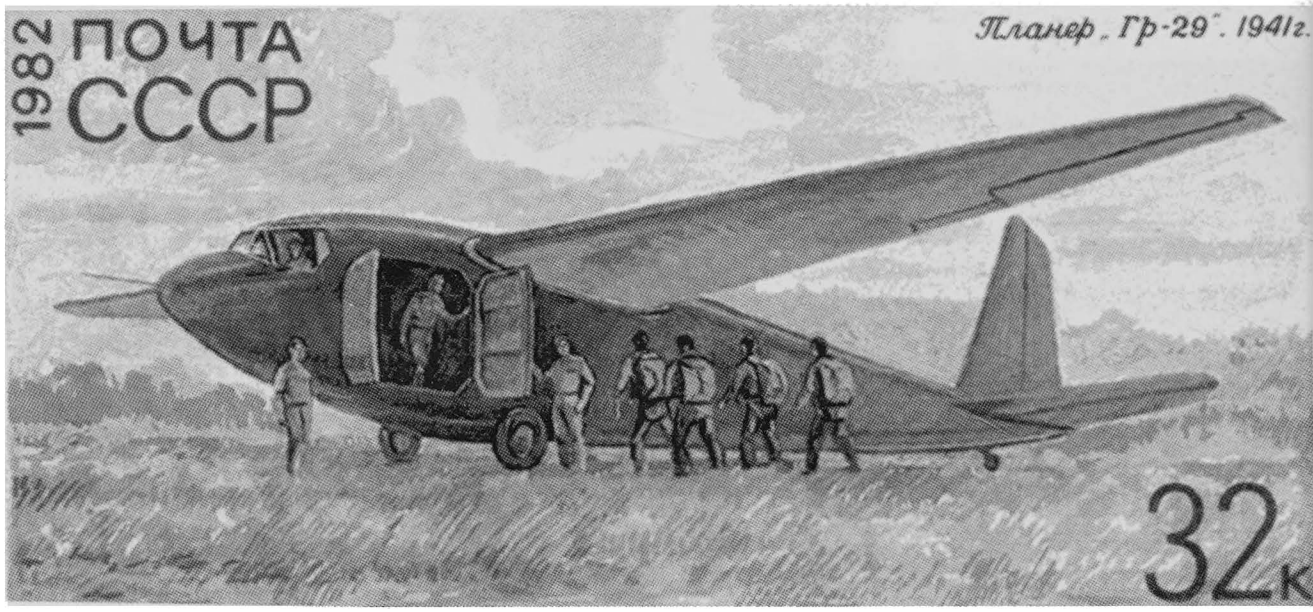


ırma: a light aircraft recovers a soldier of the West African Brigade from a jungle airstrip. ısualty evacuation flights like this vastly improved morale among the Chindit forces.

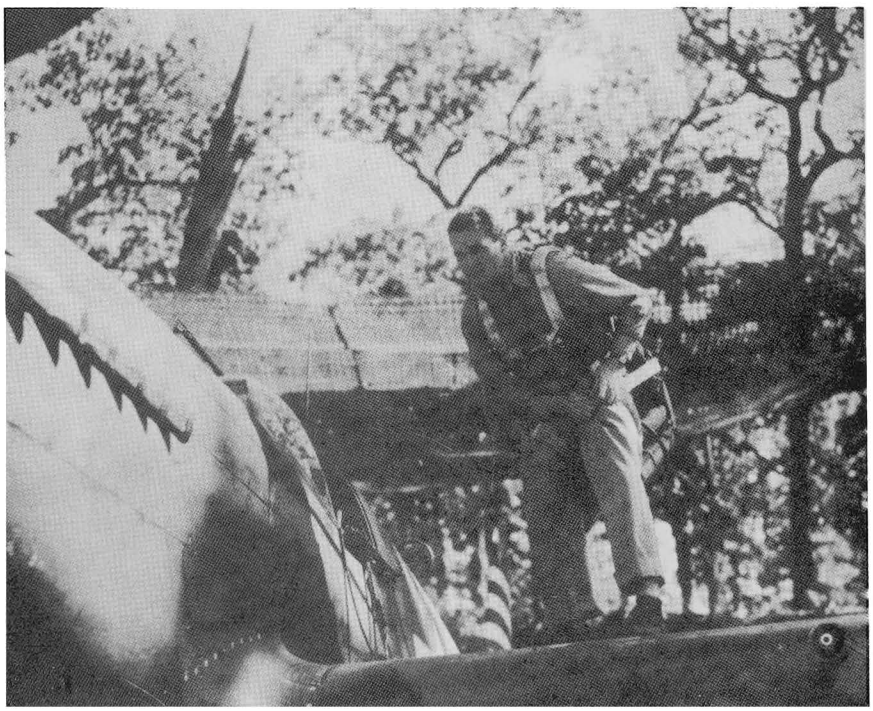
Colonel Alison (left) with Wingate (in pith helmet) and staff on 'Broadway' during the invasion of Burma.



A bulldozer is loaded into a Waco glider in preparation for the invasion of Burma.



Russian paratroops prepare for operations.



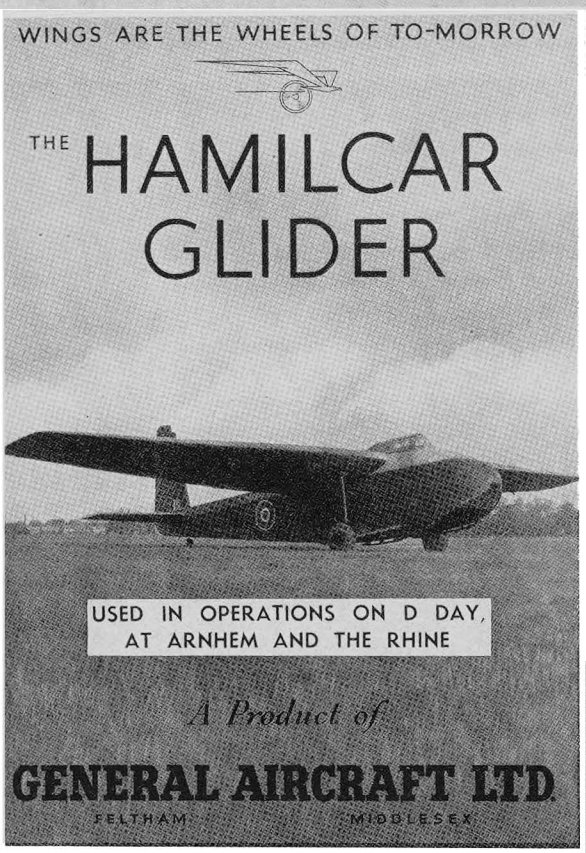
Colonel Philip C Cochran, the inspirations for the cartoon character 'Flip' Corkin in the popular comic strip 'Terry and the Pirates' and commander of 1st Air Commando.

Europe: a pilot's eye view of 'Rommel's Asparagus' – the anti-glider obstacles put in place to prevent landings. Many poles were topped with explosive charges and linked by steel wire. *(Author's collection.)*

A high altitude shot of the British landing zones taken just after D-Day. The importance of Orne Canal bridge (bottom left) and river bridge (centre) in connecting the invasion beaches (out of shot to left) with Ranville LZs (right) is obvious in this picture. *(Author's collection.)*

British Hamilcar gliders prepare for Operation Mallard, the D-Day resupply mission. *(Eagle)*

A crashed Hamilcar in Normandy. *(Eagle.)*

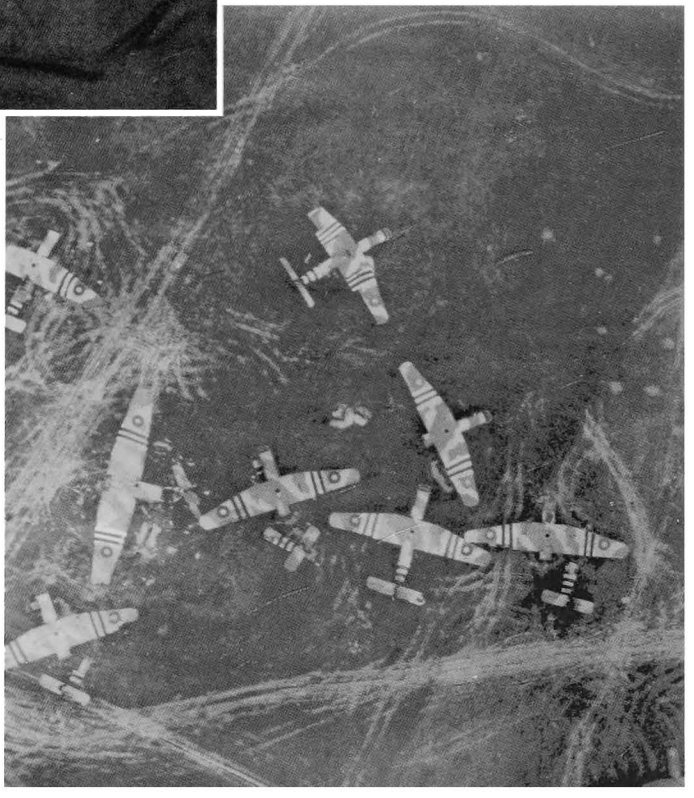

WINGS ARE THE WHEELS OF TO-MORROW
THE HAMILCAR GLIDER
USED IN OPERATIONS ON D DAY, AT ARNHEM AND THE RHINE
A Product of
GENERAL AIRCRAFT LTD.
FELTHAM MIDDLESEX

A contemporary advert for the Hamilcar glider. *(Author's collection.)*

A Hamilcar on 'high tow' behind a Halifax bomber. *(Author's collection.)*

ritish glider pilots after receiving awards at Buckingham Palace, December 1944. Left to right: Bruce obbs DFM, Stan Pearson DFM, W Herbert DFM, Jim Wallwork DFM and Tommy Moore MM. *(Eagle)*

Glider pilot and his tug captain. *(Eagle)*

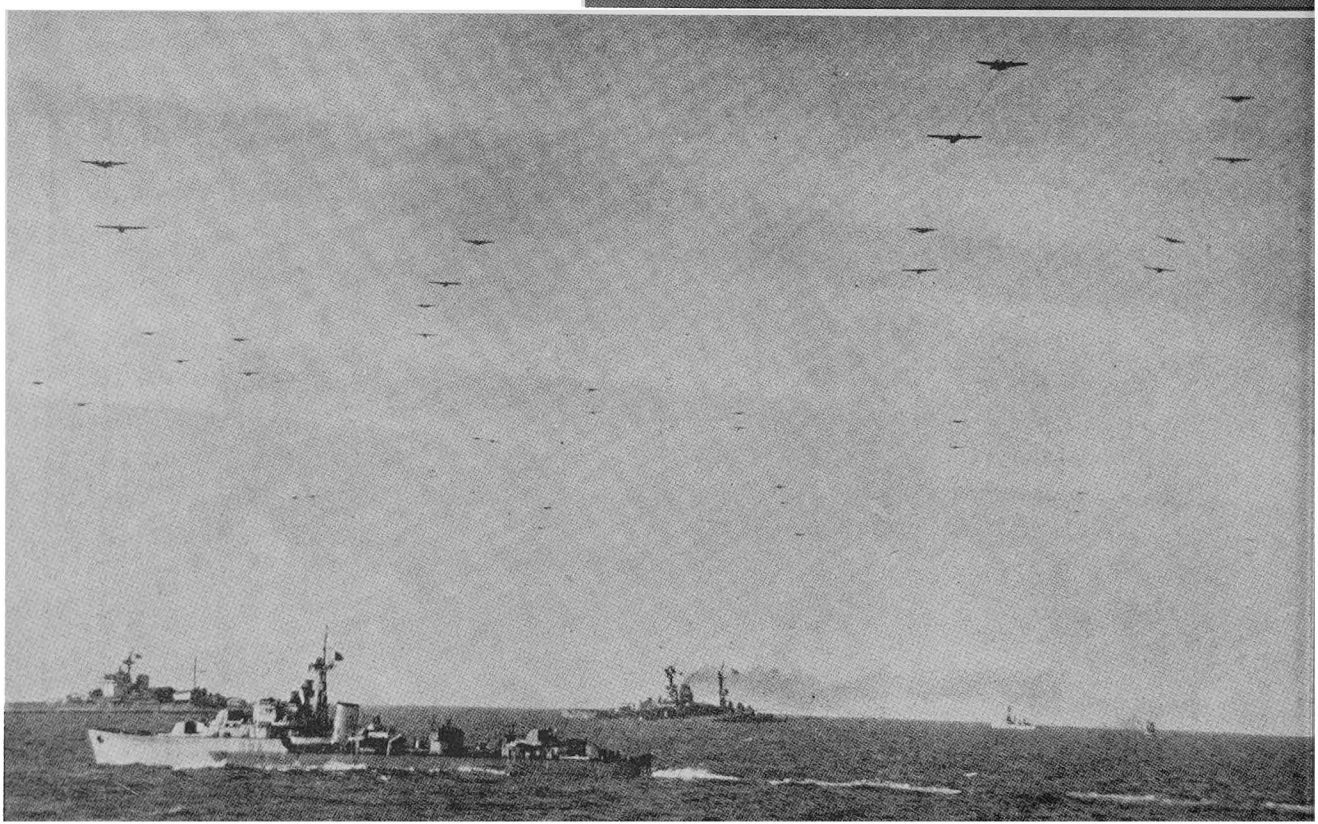


This shot, showing a Normandy landing zone, demonstrates how difficult a safe landing could be. *(Larkin.)*

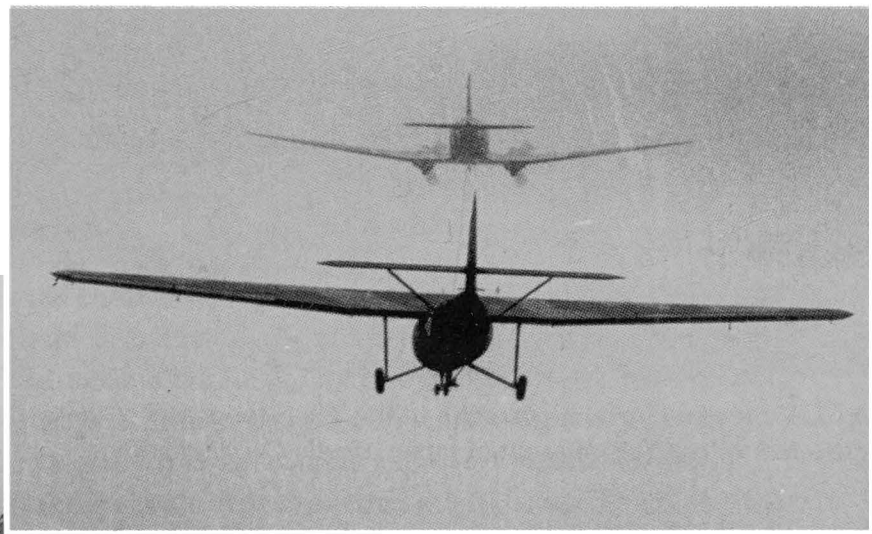
A Go242 prepares to cast off over Russia. The camouflage pattern is for the early winter period.

A DFS 230 and its passengers. In July 1944, a force was landed by DFS and Go242 gliders to seize the rebel French stronghold of Vercors. *(Author's collection.)*

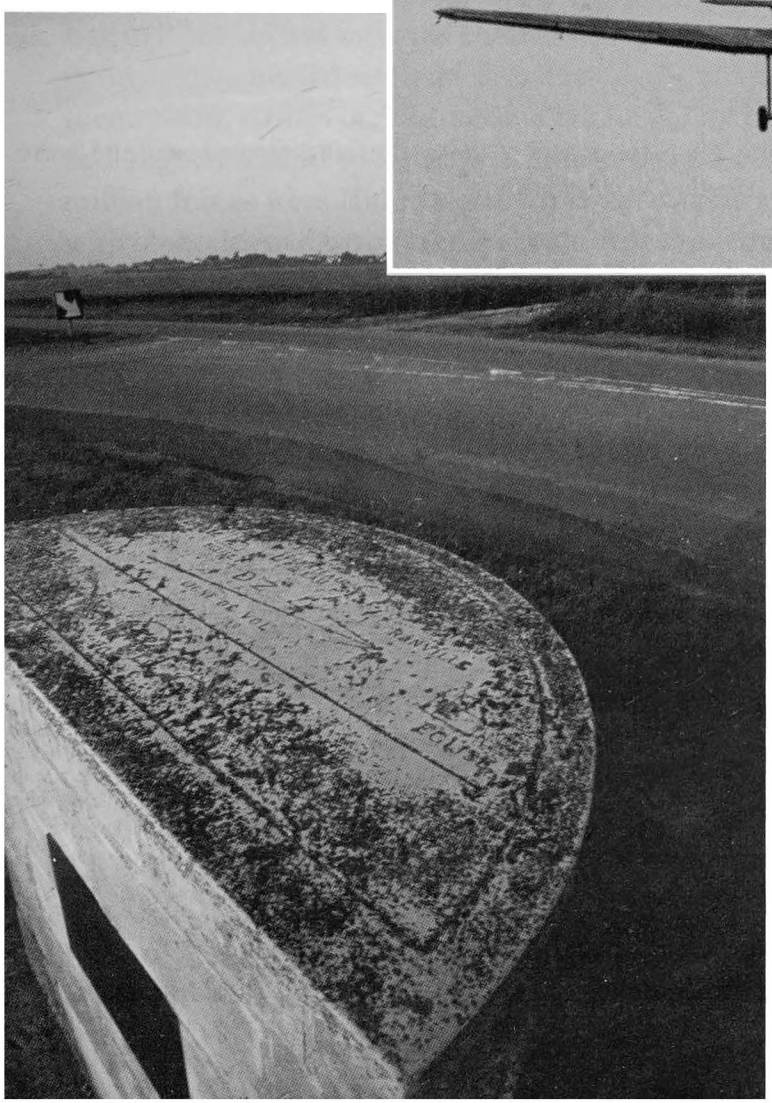
Allied glider fleet flying over the naval element of Operation Overlord.



A bust of Colonel Otway at the Merville Battery today. The gap in the hedgerow behind marks the landing site of the glider that overshot the battery as 9 Para attacked. *(Author's collection.)*



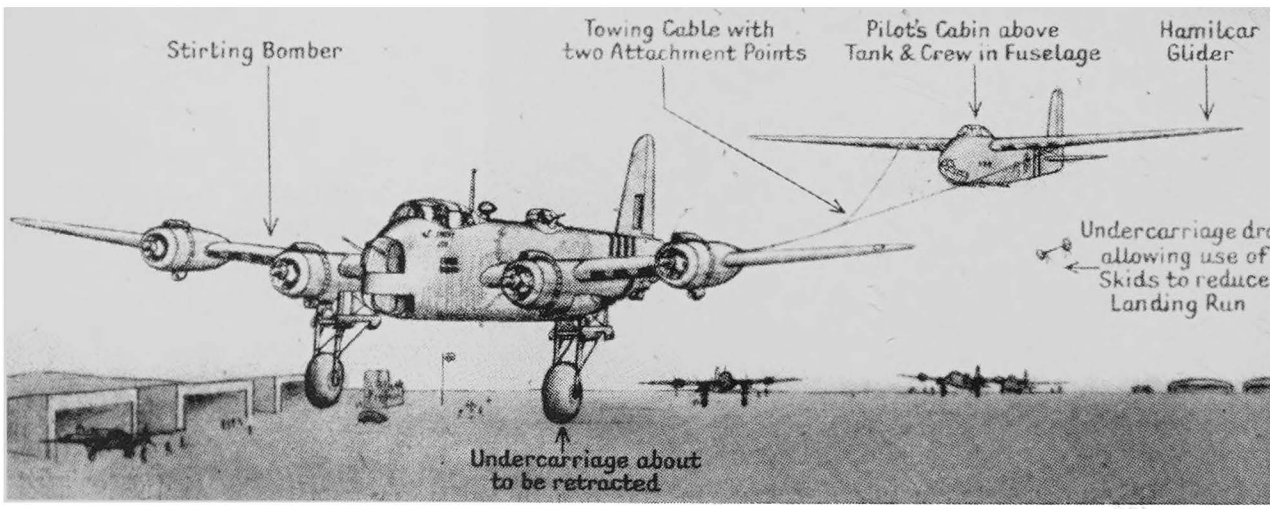
Pilot's eye view of a Horsa on tow. *(Author's collection.)*



A roadside marker overlooks the LZ north of Ranville where the 6th Airborne landed on D-Day. *(Author's collection.)*

A CG10 'Trojan Horse' on exercise in the US. A thousand of these aircraft were ordered and were expected to lead the invasion of Japan. *(Author's collection.)*

An artist's impression of the Hamilcar on tow behind a Stirling bomber.


Stirling Bomber
Towing Cable with two Attachment Points
Pilot's Cabin above Tank & Crew in Fuselage
Hamilcar Glider
Undercarriage drop allowing use of Skids to reduce Landing Run
Undercarriage about to be retracted

Jim Wallwork

Born in Manchester, as the son of an artilleryman veteran of the First World War, Jim volunteered for the British Army in March 1939. Against his father's advice, he joined the infantry but soon regretted it and, despite being promoted to sergeant, he tried to join the Royal Air Force. This was blocked by his commanding officer but in 1942 he was accepted for training in the newly formed Glider Pilot Regiment. By May 1942 he was at flight training school. Along with Andy Andrews, Wallwork was one of the few to take part in all four operations and his flight into the Orne bridges was described later as one of the greatest flying feats of the Second World War.

After the war he worked as a salesman and then in 1956 emigrated to British Columbia where, until retirement, he ran a small livestock farm near Vancouver. He remains active in the Glider Pilot Regimental Association and is a frequent speaker at conferences.

inland to be out of range of naval gunfire support. When, in 1944, Field Marshal Erwin Rommel was assigned command of the defences of the Wall, he considered them totally inadequate and immediately began intensive work to strengthen them. Soon, strings of reinforced concrete pillboxes were built along the beaches and slightly inland to house machine guns and anti-tank weapons. Almost six million mines were laid in northern France alone and every beach was studded with obstacles to destroy landing craft. Any areas that might be used for airborne landings soon sprouted *Rommelspargel* (Rommel's asparagus) – poles with mines or explosives attached to tear gliders apart. Low-lying areas were deliberately flooded.

Rommel firmly believed that any invasion would have to be destroyed on the beaches to prevent any build up of materiel able to overwhelm the defences. Even poor-quality troops could achieve this from strong fortifications with interlocking fields of fire and nothing in the German experience to date had disproved this. In the *blitzkreig* operations in 1940, after all, the much vaunted Maginot Line had not been breached, it had been bypassed. Rommel wanted to force the Allies into attacking at a point which would stretch their resources, making them even more vulnerable and his planned counterattack more effective if they had to unload equipment under fire before it could be brought into action. Field Marshal Gerd von Runstedt, however, favoured allowing the Allies to move inland and then launching a rapid counterattack to cut off the supply routes. This, he argued, would remove the heavy gunfire support from the ships which would be brought to bear at the coast. Both men argued their cases to Hitler who decided to compromise. Rommel would be given three divisions of armour for immediate defence whilst another three would be held in reserve between Caen

and the Pas de Calais, ready to be brought forward for Von Runstedt's inland attack should the beaches not be held. The significance of the Normandy area was recognized but the decision was taken that it was the Pas de Calais that should be the main focus for planning and construction of the Wall and Hitler insisted that he himself should remain in control of the panzers. By now a command structure had developed in which the large guns along the Atlantic Wall were under navy command until troops actually landed ashore, when they would be given over to the army, and the armoured forces could only move with direct orders from the Fuhrer. Rommel had no control over the Luftwaffe or its units of anti-aircraft artillery or paratroopers and command and control was fragmented at every level.

Realizing the potential threat posed to their eastern flank by the reserve forces stationed around Rouen, made up of over 1,000 enemy armoured vehicles, including the latest model of the fearsome Tiger tank, the British commanders decided that a force was needed to block the approaches to the planned invasion area. The nightmare scenario of a large, mobile force capable of outgunning most of the Allied armour running amok on the beaches had to be avoided at all costs. To reach the invasion beaches, the enemy would need to cross the Dives River at a number of points to the south of Cabourg before it could be brought into action and, if this approach could be denied them, would have to swing south around Caen itself. This would bring them head on to the invasion force rather than allowing them to attack the more exposed flank. A plan was developed to seize the ground between the Orne and Dives Rivers by an airborne assault.

Three key tasks were identified. The capture of the canal and river bridges at Benouville was vital to enable the airborne and seaborne troops to link up. Without these, the lightly armed airborne forces would be cut off. At the same time, bridges further east needed to be destroyed to prevent enemy armour from reaching the flank of the invasion force. The third task was to assault the battery of heavy artillery at Merville which dominated the landing beaches from across the mouth of the Orne. It was believed that the battery directly threatened the assault on Sword Beach at Ouistreham and had a wide field of fire across the sea offshore. So great was the threat that 10 per cent of all airborne troops to drop that day would be dedicated to the task which, even so, many considered impossible. In the spring of 1944, the airborne forces began to prepare.

That February, Squadron Commander Ian Toler of the Glider Pilot Regiment

> found a message from Wing Headquarters instructing me to provide three of my best crews for a very special operation. I was told they would have to release at 6000 feet and land by moonlight in a small field. As it had to be a surprise attack on an objective that had not yet been disclosed, no landing aids would be possible. I selected six staff sergeants whom I considered from their flying records to be the best pilots.[4]

In early March 1944 seven glider crews (six for the operation and one as backup) gathered at the Netheravon airfield and were met by their colonel, George Chatterton. Behind him were gathered a number of senior army and air force officers. Chatterton pointed out two small triangles marked with broad white tape on the airfield and gave them their briefing:

> You will be towed at one-minute intervals to 4,000ft, which will take about one hour. You will then release three miles away at a point decided by your tug, from where you will be able to see these triangles. Numbers 1, 2 and 3 will land in this one, making a right hand circuit, and 4, 5 and 6 on t'other from a left hand circuit. Now hop off for lunch. All gliders are ready and assembled on the towpath. Take off 1300hrs.[5]

To Chatterton's evident relief, all six landed exactly on target but some senior RAF officers were still doubtful so the exercise was repeated the following day. Again, the gliders landed exactly on target – surprising themselves as much as the RAF – and Operation 'Deadstick' was under way. The fourteen glider pilots were kept sequestered in one Nissen hut at Tarrant Rushton airfield with a lieutenant placed in charge. They had their own transport and their own independent operation directed by two RAF pilots, Flight Lieutenants Tom Grant and Keith Miller, both tug/glider specialists who provided the briefings, courses, winds and timings on every flight.

Jim Wallwork remembers that training for Operation Deadstick was

> all a bit half-arsed at first. A daylight tow was made at various times, apparently when Tarrant Rushton airfield was not too busy, which as two operational squadrons were based there, was not very often. Height was now set at 6,000ft, and two separate courses and times developed. Gliders 1–3 to fly a three sided path, and 4–6 a dog leg pattern. We were towed in line astern at one minute intervals. Broadly, 1–3 flew down-wind leg of 180 degrees at 90mph for 3mins 40secs, then a 90 degree Rate One turn right on to second course for 2mins 5sec, and a last 90 degree turn right for the run-in, by which time the target should be directly ahead. Gliders 4–6 cast off at the same spot, operated half then full flap and in a dog-leg course flew in straight to the target.[6]

Soon, though, the crews were facing more of a challenge, working in heavily shaded goggles to simulate night flying into ever smaller landing zones. By June, they had flown forty-two practice missions and were confident they would pull it off. Whatever 'it' was.

Elsewhere, other glider exercises did not go so well. On 4 April, 'D' Squadron supplied thirty Horsas for Exercise 'Dreme', a mass landing on Salisbury Plain. The LZ was covered by low cloud and twenty-two gliders crashed and were

written off during the landings. Worse, a Stirling tug and Horsa combination elected to fly below the cloud and slammed into a low hill at 140mph. The six-man crew of the tug, the glider pilots and their twenty-six passengers were all killed. Bill Musitano, another pilot on the exercise, wrote afterwards that 'it was said that the largest human remains were in their boots'.[7] It was a sobering omen for what was to come.

By now, men of 9 Battalion of the Parachute Regiment were preparing for their own mission – the assault on the guns at Merville. Lieutenant-Colonel Terence Otway, the battalion's commanding officer, gathered the men of 'A' Company in the mess hall and called for volunteers for a special task. Every man stepped forward. Gradually, the force was whittled down, selecting as many unmarried men as possible. Rumours of a 'suicide job' began to circulate. Fred Millward was relieved not to be selected.

> I didn't want to go in the gliders. I'd flown in one before. I had a trip in a Horsa and oh, the smell of the vomit! It was the actual movement of the thing, because not only did you go up and down, you also had the tugging. It wasn't a very nice feeling.[8]

The selected men, under Captain Gordon-Brown and known as G-B Force, would be required to land inside the perimeter of the Merville Battery in an echo of Eben-Emael attack and attack the bunkers using flamethrowers and small arms as the remainder of the battalion stormed the outer defences. Lieutenant Hugh Pond, one of those selected, was with the group when

> we were taken to a small aerodrome and made our first acquaintance with the glider and the glider pilots. We were horrified at the three-ply wooden structure and considered it more a joke, a toy, than a vehicle for going to war in . . . We climbed into the 'matchbox' and belted up. There were twenty-eight of us in all and we had a good laugh when we were introduced to the funnel which was the urinal. It doesn't take much to make a bunch of nervous parachutists laugh![9]

The flight went well and the men of G-B Force began to think their 'hazardous operation' might not be so bad after all.

For weeks, the pilots flew repeated practice landings into a circle painted on the airfield and joined the paras in street-fighting exercises in bomb-damaged areas of London. Pilot Bill Shannon was suffering a bout of flu at the time and passed out during one such exercise. He woke to find everyone had returned to barracks, leaving him to walk home. He remembered:

> It wasn't so much the walk, it was the fact that I was wearing German uniform and carrying a Schmeisser. Not one person challenged me, the whole way. In fact I lost count of the number of times I was saluted![10]

The exercises continued on a full-scale model of the battery built near Newbury but, as Hugh Pond recalls,

> when it came to live ammunition exercises we were told that we couldn't wreck a glider just for practice so we were marched into the centre of the mock-up battery and stood there, feeling rather silly, waiting for our comrades to arrive, and as one bright spark put it – waiting to be shot by our own people! [11]

To avoid that risk, passwords were hurriedly arranged. Captain Gordon-Brown, an architect in civilian life, came up with idea of painting a luminous skull and crossbones on the breast of their jump smocks. Improvising with toothbrushes and shaving brushes, G-B Force happily joined in the bravado – until someone pointed out what a great aiming point the bright insignia made.

The gliders would be guided in with the top-secret Eureka-Rebecca beacon, with the Rebecca set on the ground sending signals to the Eureka set aboard the glider. Things did not bode well, though, when the pilots joined the paras at their transit camp on RAF Broadwell in Oxfordshire a few days before the operation. On 1 June, pilot Joe Michie and the rest of the glider crews assembled at Netheravon for training on the system. They were told the course would take two weeks. After hasty phone calls, the course was speeded up but at the departure fields it was found that the gliders with arrester parachutes fitted didn't have Eureka and vice versa. Both were vital.

At 2249hrs on the night of 5 June, seven Horsas carrying the heavy equipment for 9 Para lifted off from Down Ampney heading for LZ 'V', followed at 2310hrs by four more from Harwell. At the same time, Dakotas of 512 Squadron took off with the paratroopers in thirty-two aircraft. The three Horsas of G-B Force lifted off at 0230hrs on 6 June, heavily overladen. The gliders provided were all meant to be new but what arrived were two new and one obviously well-used aircraft. All across the airborne force, men arrived carrying far more than the 'full equipment' schedule used by planners. Every man carried extra ammunition and haversacks – one pilot confiscated a bucket filled with grenades. Thirty minutes into the flight, the tow rope of the oldest of G-B Force's gliders fell victim to the weight and 'parted with a sigh more than anything'. Pilots Joe Michie and Arnold Baldwin put down at RAF Odiham at 0320hrs. Baldwin

> felt physically sick . . . I slumped in my seat feeling utterly dejected and said to Joe 'I don't give a f— what happens now'. When he responded, with a great deal of feeling 'Well I do and I expect those fellows in the back do as well!' I came out of my trance and began to think about what to do.[12]

Landing in the darkness, it fell to Baldwin to contact Chatterton by phone to report what had happened. They eventually reached France in a later lift that day.

As the remaining gliders continued, Chalk 28 began to experience its own problems. Gordon Newton, one of the passengers:

> We knew that something was not right. The glider was 'crabbing' from side to side. We didn't realize what the problem was but the light went on and the co-pilot came through, very calm and collected and said 'A knife please, any sort of knife, as long as it cuts'. I was sitting in the back seat. He said 'Just a minute mate', and pulled the back door open and cut the arrester gear off. We were about ten feet off the Channel.[13]

On the ground around Merville, the para drop had been widely scattered. Colonel Otway had not had the chance to jump but instead was blown from the Stirling Bomber that had carried his men from Berkshire by a flak burst. 'It didn't kill anyone, but it blew a great big hole in the fuselage of the plane and certainly encouraged my men to get out of the plane fairly quickly.' Off course and caught in the crosswinds, Otway found himself drifting

> straight into the side of a building at first floor level . . . As if that wasn't bad enough, the building turned out to be one of the company HQs of a German regiment and after I slid down the side of the wall and looked up from the ground, this fellow popped his head out of his bedroom window and stared at me. Fortunately, one of my corporals had landed right next to me and he had the presence of mind to pick something up, probably a stone, and chuck it at the chap, who popped his head back in. Then we vanished and never heard any more from them. [14]

Lance-Corporal Wilson, landing alongside Otway, had, in fact, landed on the roof of a glass hothouse in the garden of the farm, noisily crashing through it. The two men escaped and made their way to the RV, passing

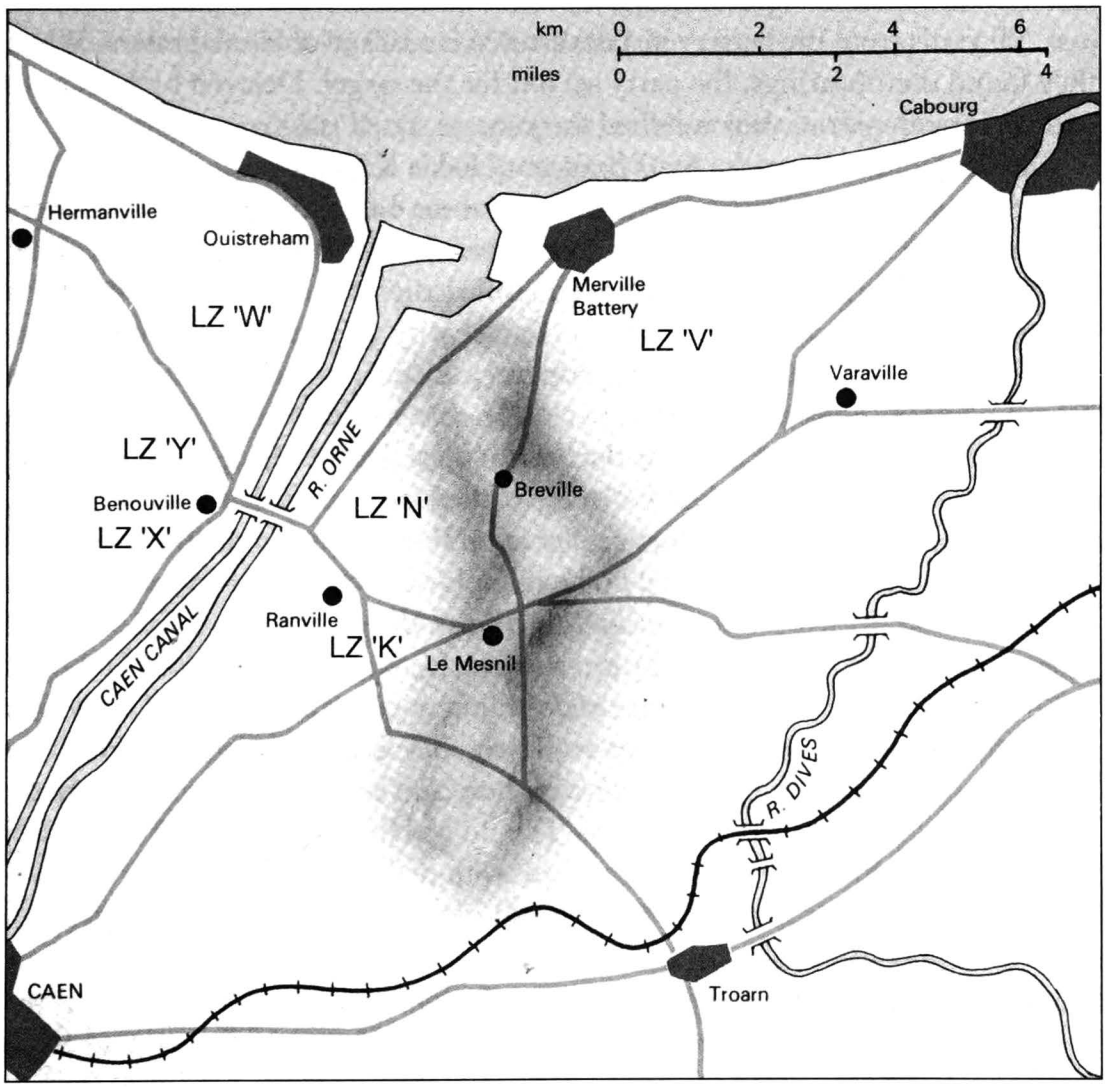
> several men who had been caught in the floods, and were weighed down with their packs, just sinking. We tried to pull them out, but there was nothing we could do except watch them be sucked down by the mud. It was very unpleasant. [15]

Scores of men remain missing even today.

Reaching the RV safely, Otway waited for his men. By 0235hrs, only 110 of the expected 750 had made it and the gliders carrying the heavy equipment, including the engineers with their mine-clearing equipment, the mortars, machine guns, anti-tank guns and medical support were all missing. By 0250hrs,

another forty men had found the RV. Otway surveyed his force – 150 men, one medium Vickers machine gun, a few Bren light machine guns and one container of Bangalore torpedoes. His men had only Sten guns, rifles, grenades and knives to take on an entrenched heavy artillery position whose defenders outnumbered the attackers. Weighing the damage the battery could cause against the men he had with him, Otway said later that 'it was a question of moving off, or give up. In the Parachute Regiment giving up is not an option.'[16] They set off on the ninety-minute march, Otway adapting his plan as he walked.

At Merville, pathfinder Major Smith was able to report that the battery was still active after bombing attacks by the RAF that left a pall of dust and smoke over the area but that the garrison did not appear to feel another attack was imminent. Smith was able to confirm the layout and strength of the battery and Otway used the information to modify his plan. The ground force would now have to destroy the battery with the limited explosives available to them. No mortar



Normandy. British landing zones.

flares could be found and without these, the landing site for the gliders could not be illuminated and he could not rely on them being able to land on target.

As the paras moved into their assault positions, the gliders arrived overhead. Low cloud had forced them to fly at just 1,000 feet to the area where clouds of dust still hung obscured the LZ after the bombing raid earlier. Aboard the glider bringing in Captain Gordon-Brown, Gordon Newton, carrying a flamethrower, was becoming nervous as

> flak started coming up. It was coming through the floor and out the roof. Under the seats, which are along the full length of the glider, you had all the other equipment, and there were mortar bombs, high explosives, there were replacements for the flamethrowers . . . The whole thing was a tinderbox. [17]

Newton moved forward to sit with his fellow flamethrower just as flak ripped through the glider, straight through where he had been sat. The glider put down just 200 yards from the battery in a devastated landscape of bomb craters. When they found their bearings, the party set out for the target. Delayed by a firefight with a German patrol, they watched the success signal rise from the battery.

The final glider, flown by Staff Sergeant Dickie Kerr and co-pilot H Walker, circled the area searching for any indication of the LZ. At only 1,000 feet, there would be very little time to identify it and land. Under flak fire the whole time, tug pilot Flight Lieutenant Thompson circled the area six times, flashing his identification lights to try to establish contact with 9 Para. For the men in the back, glider flying could be a nauseating experience on even a smooth flight. Now, as the tug took evasive action, para snobbery about glider troops disappeared quickly but airsickness was the least of their worries. Sapper Alex Taylor, flying in the same glider as Hugh Pond, recalled being told that they were over the target and coming around for another run. 'We were in trouble! The flak was catching us again. Holes appeared in the thin plywood fuselage of the glider. Our tug was taking evasive action, causing terrific strain in the fabric of the glider.' The aircraft circled the site for fifteen minutes searching for a signal. Finally, a red triangle appeared and Kerr cast off, circling now to lose height: 'Three light flak batteries were now engaging us and the glider was hit frequently. We were hit about eight times in the fuselage with bursts of tracer and twice by cannon shells. The wings got a lot of tracer too. I could feel them quivering as the bullets hit them.' [18] Behind him, four men were wounded. Headed towards the casemates at 90 miles per hour, the men braced for impact when another flak shell hit the tail, forcing the aircraft to swerve. As it sped towards a nearby field, Kerr saw a skull and crossbones sign at the edge of a minefield and pulled back on the stick. Lifting again, they passed only feet above the men of the ground force before crashing into the orchard near the attack start line. Kerr was thrown twenty feet from the cockpit, landing in a bomb crater. A flak round had hit a

box of smoke grenades and, as the stunned passengers clambered out, the glider burst into flames. Quickly gathering themselves together, the party set out for the battery but almost immediately encountered German reinforcements heading for the battle and another firefight began. Fortunately, they had landed in the ideal place to protect the ground force's flank.

Despite the setbacks, Merville Battery fell to the depleted paratroop force. A few miles away at the bridges, Major John Howard 'was a little worried about the position on the bridge over the river, till I got on my wireless the code signal for victory. "Ham and jam" said a voice, "ham and bloody jam". Then I blew the V-sign on my whistle.' The first objectives were secure, the battery under attack and already the next wave of gliders was about to land.

The gliders, including four of the massive new Hamilcars from 'C' Squadron, were on their way carrying heavy equipment for the paras tasked with sealing off the area by blowing the Dives River bridges. In a chaotic night, gliders sometimes landed far from their objectives – one as far afield as Le Havre. Before setting out, the men of 6th Airborne Division had been given the freedom to act on their own initiative by General 'Windy' Gale:

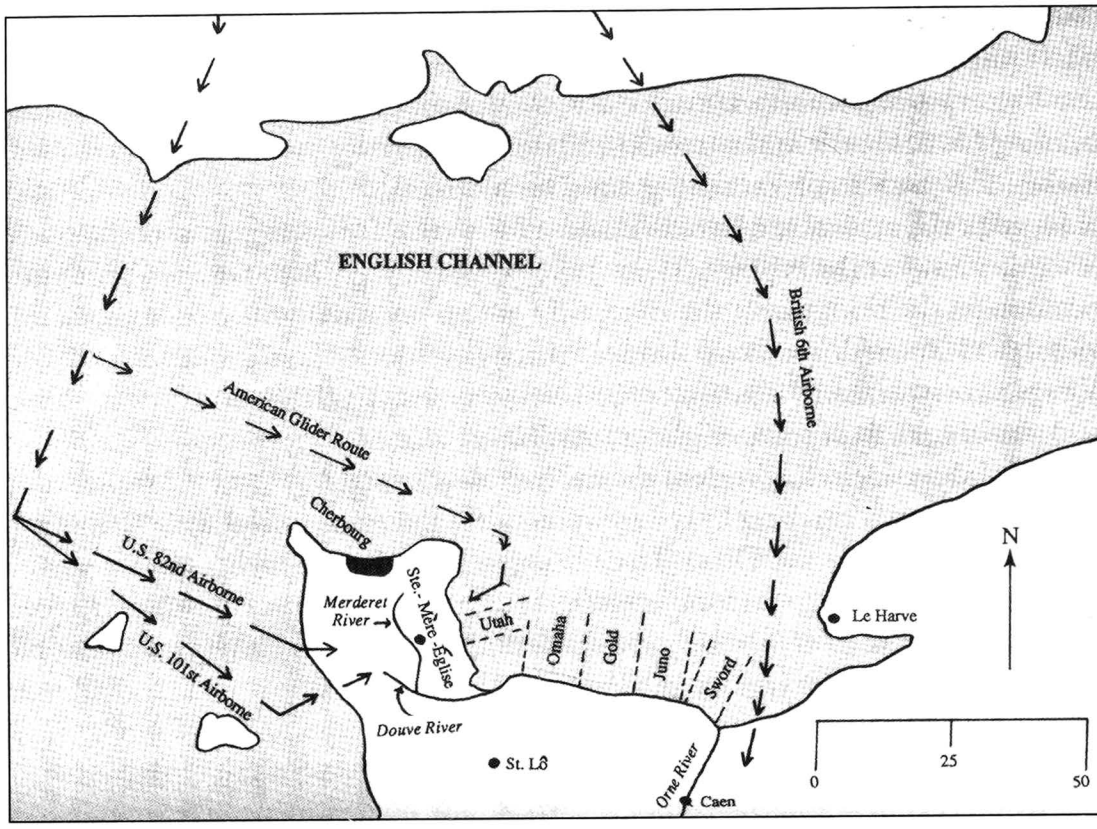
> You must remember that it is your plan, and that it is your duty to ensure that it is your plan which is being carried out. Your responsibility in this is not one that you can be permitted to shirk. Your natural tendency may be to fight shy of it. You cannot; for ultimately the edifice is yours, and its foundations and cornerstones must be laid by you. [19]

As 9 Para made their preparations, the pragmatic Brigadier Hill had told them 'gentlemen, in spite of your excellent orders and training, DO NOT BE DAUNTED IF CHAOS REIGNS. It undoubtedly will.'[20] Now scattered forces fought their own small wars to achieve their aims. At Truarn, Major Tim Roseveare and his team commandeered a jeep from a glider and used it to charge directly through the German garrison in order to blow the river bridge. At Varraville, the crew of Chalk 94 – originally intended for the Orne River bridge assault – had landed off course beside two bridges across the Dives. Arguing later that they had been sent to capture two bridges and had, nevertheless the party made their way slowly back to British lines, collecting stray groups as they did. One by one, all the targeted bridges were blown.

The US airborne assault, 6 June 1944

As the British consolidated their positions, at the other end of the invasion area their American colleagues had begun their mission to deliver support for the 82nd and 101st Airborne Divisions on the western flanks.

The American airborne assault had been controversial in the planning phase. Lieutenant-General Omar Bradley had been given command of the American



Normandy: US glider routes.

element of the ground assault and had decided that it was crucial to secure four causeways behind Utah Beach by the use of an airborne assault. Unlike the British landing zones, though, those around Utah would be in the Norman *bocage*. The countryside here was marked by small fields bordered by high hedgerows dating back hundreds of years and where the root systems had become so thick that German troops were able to cut holes and firing loops into them through which they were able to conduct strong defensive stands. Air Chief Marshal Leigh-Mallory, appointed by Eisenhower as overall air commander, felt that the area was unsuitable. A combination of terrain, flak concentrations and anti-invasion defences were expected to inflict casualties as high as 50 per cent among the paratroopers and 70 per cent among glider-borne troops. 'I cannot approve your plan. It is much too hazardous an undertaking. Your losses will be excessive – certainly far more than the gains are worth. I'm sorry, General Bradley, but I cannot go along with you.' Bradley, though, was insistent, telling Eisenhower that 'much as I favour the Cotentin assault . . . I would sooner see it go by the boards than risk a landing on Utah without airborne help.' Eisenhower, torn between commanders, eventually decided that the possible benefits outweighed the risks but even as late as 30 May, Leigh-Mallory went to Eisenhower's Portsmouth Headquarters for a final, last-ditch plea to prevent was he was convinced would be 'the futile slaughter of two fine divisions'.

Eisenhower, who had thought the matter resolved long before, deliberated into the night before deciding to side with Bradley.[21]

At 0119hrs on the morning of 6 June, fifty-one Waco gliders towed by Dakotas of 434th Troop Carrier Group took off from Aldermaston at the start of Operation Chicago. They would land ten miles inland of the coast at Hiesville in support of the 101st Airborne's mission to secure the causeways off Utah Beach. Among them, 'The Fighting Falcon' was carrying Brigadier-General Donald Pratt and flown by Lieutenant-Colonel Mike Murphy, architect of the 'pea patch' demonstration that had re-established confidence in the US glider programme the year before. Forty-nine arrived over the target area at 0354hrs, searching for the LZ markers. Landing on wet ground, Murphy was unable to control his glider's skid and it crashed headlong into a hedgerow. Murphy survived with broken legs but Pratt was among five men killed.

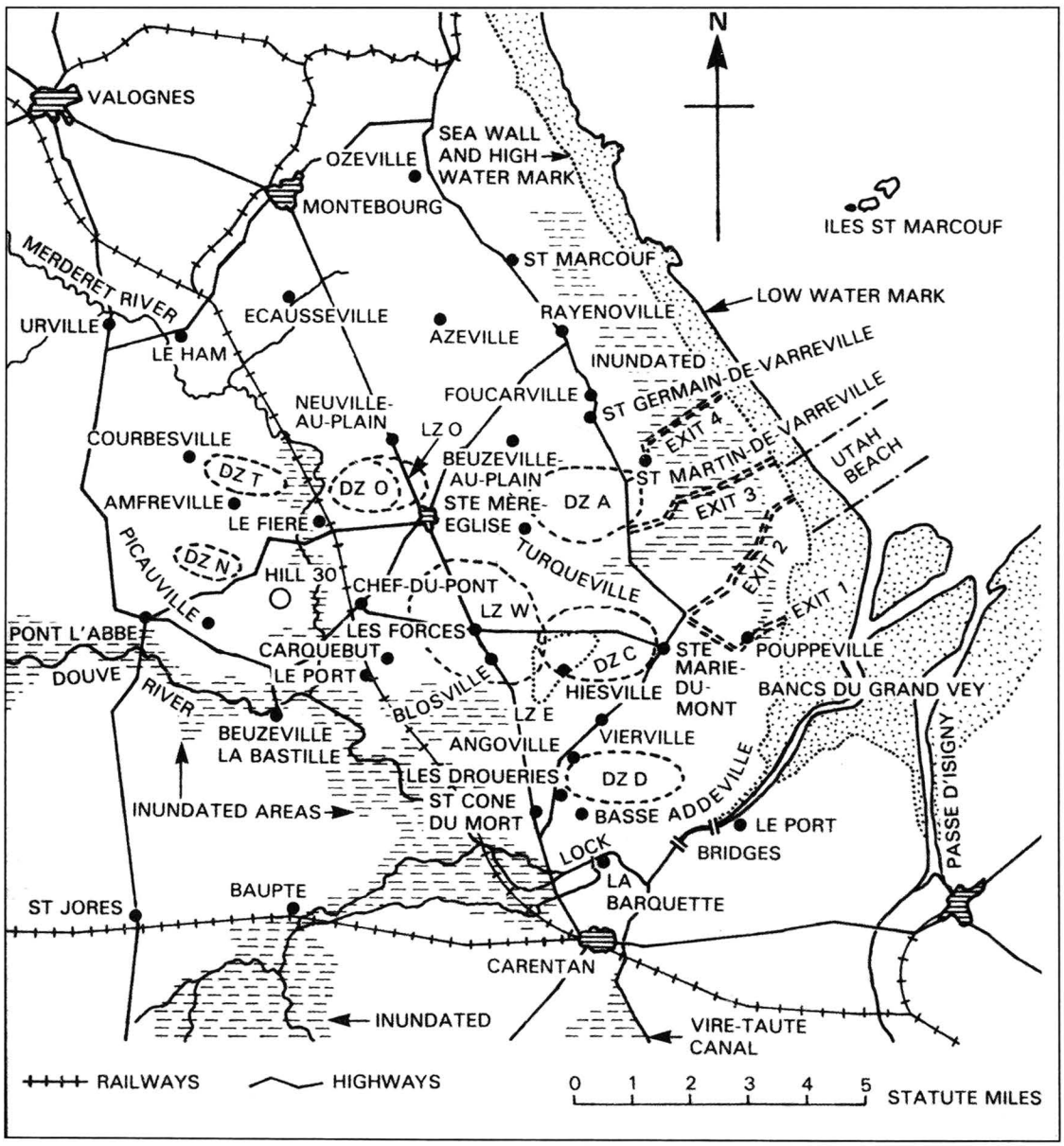
Operation Detroit, the 82nd Airborne's glider element, took to the air at 0159hrs with fifty-two Wacos from Ramsbury in Wiltshire. As they crossed the coast of France, seven were lost when their tow ropes broke or were shot through by flak. Seven more released early when their pilots mistook the flooded river areas for the sea on the far side of the peninsula, causing following tugs to release in the belief that the LZ had been reached. Now under small arms fire, the remaining gliders reached their target area and put down wherever they could find room. Flight Officer Francis Zinser was among them:

> I had a hell of a time finding my proper position behind the tow plane because of low cloud cover and turbulence. It wasn't long after we crossed the coast of France that we ran into a wild overcast so thick that it was like a dense cloud of black smoke. I couldn't see a thing, not even my own tow plane . . . I released the tow rope and turned toward my landing, but I evidently got a little too low in the darkness and I hit the top of the trees on the edge of the field. The trees tore off my left wing and we slewed around and hit the ground upside down. [22]

Twenty-two gliders were destroyed in the landing and another twelve damaged. One landed in the midst of a herd of cows with a bad outcome for all concerned but half the intended force was soon in action.

On the evening of D-Day itself, both the British and Americans launched massive resupply operations. The 6th Airborne, supported by Operation Mallard, were able to read about the invasion in the evening papers brought over by the glider crews. This third wave, arriving during the evening, were forced to land on the same LZ s used earlier, in fields littered with glider fuselages and where hundreds of vehicles were scurrying around. Accidents were common. Staff Sergeant G Heaton, flying a Hamilcar of 'C' Squadron, remembers

there was a certain amount of small arms fire, including tracers, coming up at us, and the field in which we landed near Ranville had got telegraph poles erected in to hinder the landings. We came in rather fast with our wings hitting the odd telegraph pole, which proved to be no obstruction, but just as I thought we were going too fast and would end up in an orchard at the end of the field, a Tetrach [a light airborne tank] which had just driven out of the Hamilcar landing before we did, proceeded at right angles across our landing path. The tank commander, who was standing in his little turret, took one look, mouthed imprecations and leaped from the tank a second or two before we hit it at a speed of ninety to one hundred mph. My first pilot, Charles Channell, and I



Normandy: US landing zones.

> jumped from our cockpit, forgetting in the heat of the moment: (a) that my flying helmet with its intercom was still plugged into its socket, thus wrenching my neck; and (b) that the Hamilcar cockpit was situated on top of the glider, some fifteen to twenty feet above the ground.[23]

Fortunately, all survived and the driver was rescued. The light Tetrach tanks were advised to have the motor running during landing, ready to unload as soon as the aircraft came to a halt but this proved to be a dangerous decision. Glider pilot B Tomblin, of 'E' Squadron, had landed earlier in the day. Watching the arrival of the Hamilcars, he saw one come in 'very steeply, when a tank shot out of the nose of the glider followed by the glider helplessly out of control'.[24]

On the western edge of the invasion a second wave of US gliders, resupplying the 101st and 82nd in Operations Keokuk and Elmira respectively, brought in more heavy equipment using Wacos and British Horsa gliders flown by American pilots during the evening of D-Day. It had seemed like a fairly straightforward mission as Elmira's first echelon took to the skies above Ramsbury at 1920hrs. A total of fifty-four Horsas and twenty-two Wacos would deliver 428 troops, jeeps and anti-tank guns to LZ 'W' near Ste Mere Eglise, followed a few minutes later by the second echelon of eighty-six Horsas and fourteen Wacos. Unbeknown to the glider pilots, LZ 'W' was still being fought over even as they approached. General Ridgeway, whose radios were among the casualties of the previous night's drop, could hear the seaborne forces attempting to break through to him and the towplanes of the glider force approaching but could do little to warn them that the northern half of the LZ was in German hands and 88 mm guns on the nearby Hill 20 at Fauville were zeroed in. As the first echelon arrived, they were met with fairly light flak until they cut loose from their tows. By the time the second echelon crossed the coast, the flak batteries were ready and fire began to intensify three miles from the LZ and all the way in. The Horsas – known to the Americans as 'flying coffins'– lived up to their reputation. Only thirteen of the eighty-four Horsas that reached LZ 'W' were undamaged. Fifty-six were completely destroyed. But the glider pilots who had considered the Wacos' steel construction to be more of a guarantee of a safe landing were proved wrong – not a single Waco survived the landing intact. For days, many of the pilots found themselves pinned down among the paratroopers fighting for control of the area. Ten were dead, twenty-nine wounded, seven captured.

On D+1, Operation Galveston in support of the 82nd and Operation Hackensack for the 101st became the last glider operations of the invasion when thirty Horsas and twenty Wacos delivered supplies. By then, 1,030 US glider pilots had flown into France. Twenty-five were known to be dead and many more were fighting alongside the infantry in scattered pockets. Losses had indeed been heavy but thankfully not as bad as predicted. Both divisions had lost

around 1,250 men each. Over 60 per cent of all supplies intended for the airborne assault had been lost. Like their British counterparts, the surviving pilots had been evacuated back to England to get ready for more flights as the Allies pushed inland. It was a strange experience for the survivors. British pilot Bob Cardy flew into Normandy with his co-pilot, 19-year-old Sergeant Sid Longworth. They had been instructed to return to the UK as quickly as possible to collect another aircraft and load. Along with a group of pilots, they made their way back to the beach. 'Young fellows were wading in as we were going home again. It hardly seemed reasonable; hardly possible that it had happened. Within hours we were in England, had showered and were boozing in a wayside pub.'[25]

The liberation of Europe had begun, to the joy of those held captive by the Nazis for four long years but the next glider operation in France would be a very different matter.

Assault on Vercors, 21 July 1944

On the other side of France, the combined resistance movements of the French Forces of the Interior (FFI) began receiving increased levels of supply drops in an effort to pin down German forces and prevent them reinforcing the Normandy beachheads and as preparation for a second invasion from the south. Back in 1943, the 'Plan Montagnards' (Plan for the Mountains) had already decided that the Vercors region near Grenoble would be strategically important for any Allied landings in Provence. At the beginning of the war, the Vercors had been located in the Vichy French free zone, and political and Jewish refugees had streamed into the area to escape purges in the north. When, in November 1942, the Vichy government handed power to the Germans, the isolated mountains of the Vercors welcomed an influx of volunteer Resistance workers who were later joined by draft evaders escaping forced labour under German conscription laws. In the deep forest of the plateau, the resistance camps were well protected from German attack and by May 1944, around 500 Maquis were operating in the region supported by regular supply drops and even landings by Allied aircraft flying from North Africa. With news of the Normandy invasion, the number rapidly swelled to over 4,000 during June.

On 21 June, members of a 'Jedburgh' special operations unit commanded by Major Desmond Longe parachuted into the Vercors region as part of an inter-allied mission codenamed 'Eucalyptus', intended to provide arms and training and to look for suitable landing and drop zones for airborne operations in the area. The British had been unable to drop mortars and other heavy equipment because of the risks involved in securing the bombs' sensitive fuses so instead, a landing strip was to be prepared on top of the plateau and supply flights would bring them in directly. As part of the preparatory operation, Second-Lieutenant Andrew E Pecquet (codenamed 'Paray') dropped as part of an American team and spent the night in a hotel in Vassieux. The next morning he woke to find

> the 450 inhabitants of the village were in the street. They had been making American flags during the night, so the Stars and Stripes floated in the breeze beside the French tricolour among the bouquets of flowers. In the Vercors they thought that these commandos in uniform – the OG [Operational Group –part of the Office of Strategic Services and forerunners of the CIA] – were the advance party of an army of paratroopers.[26]

Their arrival prompted a surge of nationalist pride among the inhabitants of the Vercors, an attitude fuelled at 0900hrs on Bastille Day, 14 July when seventy-two American planes dropped 860 containers of weapons and ammunition and even included a small tricolour parachute in the honour of the national festival. At the end of the drop, German planes attacked as the Resistance workers collected the containers but even this did not dampen enthusiasm. Vercors was declared by its population to be a free, independent republic.

Such behaviour could hardly be missed by the Germans. The Jedburghs had been warned at the start of the operation that Brandenburg troops had been seen in Pont St Esprit and now, slowly, the net around Vercors was being drawn in. In Grenoble, German General Karl Pflaum had carried out some small-scale operations in mid -June around St Nizier and Ecouges to test the size of the resistance force. Now he decided to strike a knockout blow. Between 18 and 20 July, two squadrons of I/LLG1 (1st Squadron, 1st Airlanding Group) arrived in Lyon equipped with twenty Do17/DFS 230 tow combinations and Go242s of I/LLG2. They were to transport paratroopers to the area around Vassieux, landing on the newly prepared airstrip and secure it so more troops could be air landed and then link up with ground units who had sealed off the area below. Rehearsals for the mission began at an airfield at Montelimar.

Fallschirm-Aufklärungs-Abteilung 12 under Major Hans Jungwirth (Kampfgruppe Jungwirth), a new formation of two companies, was created for the task in June 1944 and based in Lyon-Bron under the overall command of the Luftwaffe's special operations unit, II/KG200 based in Dedelstorf. It was made up of a company of paratroopers under Oberleutnant Friedrich Schäfer and another of the Brandenburgers of the 8th (Legionnaire) Company of the Brandenburg Division's 3rd Light Infantry Regiment. In this operation, they would be supported by the German Army's 157th Reserve Division currently based in towns in the region of the Vercors.

Further support would come from a third element made up of the German controlled SD (Sicherheitdienst) and SIPO (Sicherheitspolizei) police forces following in the wake of the combat troops. These elements included the combined Vichy French paramilitary police force known as the 'Milice Française' and an elite subsection of the Vichy 'Police Nationale' known as the 'Garde Mobile de Reserve' which had the specific task of actively combating known terrorist organizations; they were one of the most brutal enemies of the 'Maquisards' of the FFI, working enthusiastically alongside the SD and

Ordnungspolizei to infiltrate and mercilessly root out opposition to the Vichy regime.

Beginning on 18 July, the 157 Reserve (Gebirgs) Division, along with selected mobile units of the 9.Panzer-Division began encircling the plateau. Moving from Grenoble-St Nizier in the north and keeping pressure on three sides, they swept around to envelop and reduce the twenty by thirty kilometre FFI 'Republic' on the Vercors Massif. As they advanced, police troops moved in to mop up in their wake.

Three days later, just after 0930 hrs, the first wave of twenty DFS 230 gliders arrived over their target. Some were tasked to land on the plateau, others in Vassieux itself. Almost immediately, they came under heavy small arms fire and three were hit during the landing, causing several casualties among the paras aboard, which in turn hampered the street fighting that was now beginning. By evening, twenty-nine paras had been killed and another twenty badly wounded and they had been forced back into defensive positions. Bad weather the following day prevented reinforcements being flown in and it was not until 23 July that another flight of twenty DFS 230 and two Go242s could reach their beleaguered comrades.

On the 24th, a Go242 carrying a 2 cm flak gun arrived and within a few hours the weapon had turned the tide, destroying the resistance strongholds and forcing them to withdraw. The operation had been a success but had cost the lives of 101 paras, forty-six of whom died in the vicious fighting around Vassieux. Four glider pilots were killed in the operation, Eberhard Pyritz, Karl Rink, Unteroffiziers Metzen and Birzer. As the kampfgruppe left the plateau, the gliders were set on fire where they lay.

What happened next cast a shadow over the Luftwaffe's reputation as an honourable fighting force. In a brutal five-day campaign, Kampfgruppe Jungwirth burned houses and shot anyone suspected of being a maquisard or of aiding the resistance. Exact numbers of casualties have never been established but sources speak of 639 resistance fighters and 201 civilians killed as across the area, villages and farms were burned down, animals shot and farm machinery destroyed. On 27 July, a German plane spotted a Red Cross over the Luire cave and German troops arrived at around 1630hrs. Around fifty people were sheltering there, including one of the American Jedburgh troops and several German wounded. Despite pleas for mercy from the Germans, who had been well treated, twelve of the wounded were murdered and their bodies thrown into a nearby river. The nurses were later deported and two doctors and a priest executed in Grenoble.

Most accounts of the Vercors operation blame the SS but in fact, for once, they were not guilty. There were no SS troops in the area but the large numbers of civilians killed during the Vercors operation meant that it was one of four such attacks the French formally raised at Nuremburg. Because the other three massacres were definitely committed by the Waffen SS there has been

assumption in most French writing that this atrocity was also their work. Within a few weeks, it all came to nothing when the Germans withdrew from the region.

Operation Dingson: French SAS insertion, 5 August 1944

Back in England, in the wake of D-Day, glider crews had stood ready to fly operation after operation, only to have them cancelled at the last minute as the objectives fell instead to ground troops. In August, however, a small operation in Brittany was under way that seemed as though it might set a new pattern for the men of the Glider Pilot Regiment. In late May 1944, eleven crews had been taken off D-Day training and reformed as 'X' Flight under the command of Captain 'Peggy' Clarke at Netheravon. Each was a veteran of Sicily – familiar with the Waco 'Hadrian' gliders they collected from an American base but knowing only that they would be taking part in a special operation. After intensive training, the crews moved to Tarrant Rushton on 7 June and continued training with Halifax tugs.

On 4 August, Colonel Chatterton arrived with Lieutenant Bodolec and thirty-five Frenchmen of 4th Battalion SAS in ten heavily armed jeeps to brief the men on their mission. The Frenchmen were part of a force who were to land nearly 200 miles behind German lines in the Vannes area of Britanny to link up with a force of around 3,000 French resistance fighters and harass the German supply lines. Other operational bases were already in existence and this one, Dingson, had already been the subject of many other air resupply flights. This would be Operation Dingson 35A.

At 2005hrs the following day, the force set off. At a small field about ten miles from Auray, resistance fighters organized by Special Operations Executive officer Richard 'Ruby' Rubenstein held off German patrols as the jeeps unloaded and sped off in the direction of Sainte-Helene to meet up with resistance HQ. One Waco carrying a team under Pierre Philippon, a former member of the Resistance Movement 'Réseau Bordeaux-Loupiac' was lost but the remainder arrived safely and were soon patrolling towards Auray, Quimper and Lorient, attacking convoys of retreating Germans and isolated pockets of resistance. Left to their own devices, the pilots – with a 20,000 franc bounty on their heads – spent the next week at the Maquis headquarters but they soon became bored.

The sometimes casual nature of the SAS (they frequently stopped at cafes and bars for a drink in full uniform) encouraged the pilots to take risks. Tired of being cooped up, Sergeants May and Beezum decided to take a chance to go into a village near Lorient only to narrowly escape a German patrol when a villager hid them, despite the fortune the bounty represented.

The SAS were soon involved in heavy fighting and John Batley found himself called upon to dig thirteen pieces of shrapnel from the shoulder of one man who then calmly picked up some bread and ammunition and went back out on patrol. Despite their undoubted courage, the pilots were less impressed with other

aspects of their hosts, particularly after witnessing a brutal torture session of a young man suspected of collaborating. 'Feeling sick inside but too scared to say or do anything, we crept away to the barn and tried to sleep', Beezum later wrote.[27] They were more than a little relieved when, a few days later, they were told that an American armoured unit was nearby. Sitting on a wall, they watched as the tanks approached. A burly officer asked how long they had been there. 'Too long' was the heartfelt reply. Only later did they spot the officer's helmet with its stars – but Patton took them aboard cheerfully.

On 16 August, they returned home to Tarrant Rushton, just as another operation was about to set off from RAF Keevil where John Morrison had been given the task of transporting a British SAS squadron into the area around Falaise to harass the retreating German army. This time, however, it would need Horsas. Even with their armour stripped off, the armed jeeps weighed 4 tons – 50 per cent over the maximum load of the Horsa. To that was added the trailers filled with landmines and the men themselves. Practice runs showed that the tug combinations needed the longest runway available and that the gliders 'flew like a barge'. They dropped like a stone when released but it could be done. At 0800hrs on the 18th, Morrison briefed his flight. The Germans were effectively trapped in a pocket but for one escape route around Falaise. The SAS would land and attack any and all targets that presented themselves. The gliders would land wherever the opportunity arose and the jeeps would then make for a squadron RV. With no space on the jeeps for passengers, the glider crews would form their own fighting unit and link up with the advancing Canadians. At 1100hrs, the tugs began to roll but the gliders had barely cleared the runway when they were recalled. Morrison had mixed feelings as he returned to base, 'I always had the feeling that, as far as we were concerned, our Flight's plan for action once we had landed was a bit woolly!'[28]

For weeks, false starts and cancelled operations undermined morale. Operation Axehead, a plan to capture bridges on the River Seine, was followed by 'Linnet', a planned landing in Belgium. 'Linnet II' would encircle the enemy at Maastricht. 'Infatuate' would see troops landing at Walcheren. The list went on. For some pilots, fourteen, fifteen, sixteen, even seventeen operations had been made ready and scrubbed. Many wondered if they would see action again. Very shortly, they would.

Operation Market-Garden: the airborne carpet across Holland, 17–25 September 1944

The Fall of Paris on 25 August 1944 effectively ended the Normandy campaign and the closing of the Falaise gap had led to a massacre of the German 7th and 15th Armies in France. As the demoralized remnants fled, it seemed that the entire German effort in the west had collapsed and was in retreat but with the Allies still dependent almost entirely on the port of Cherbourg for supplies,

Eisenhower's 'broad front' strategy was running out of steam. Other harbours should have been available but Dunkirk would hold out until May 1945 and, although the massive port of Antwerp lay intact in British hands, it was unusable since the Scheldt estuary leading inland to it was still under German control. Eisenhower's problem was now to decide whether to pursue a broad logistical solution and clear the approaches to Antwerp or to concentrate on destroying German forces in a decisive tactical move. With the battered German armies seemingly on the run, most Allied commanders were in favour of a pursuit and the rapid destruction of their fighting ability. Both Patton and Montgomery now switched from the agreed 'broad front' advance strategy in place before the invasion, to each lobbying Eisenhower for priority on supplies in order to cross the Rhine River in a single decisive thrust by their own forces.

Montgomery argued for a thrust north through Holland and into Germany's industrial heartland that would also serve to eliminate the V-2 rocket sites currently bombarding London and Antwerp. Patton's 3rd Army were already into German territory and advancing on the German city of Aachen but had been stopped by the length of their supply lines (the 'Red Ball Express' convoys carrying everything needed to keep the army moving from depots at Cherbourg were by now making 1,700 mile round the clock trips to reach him). Loudly complaining that 'my men can eat their belts but my tanks need gas!', Patton claimed that, if he was given everything he needed, he could reach Berlin by pushing east from Metz and from there directly into the industrial Saarland, smashing through the Siegfried Line to the heavily defended Rhine. Allied air transport, it was argued, could be used to leapfrog any problems in the rear and quickly move supplies to the mobile front lines.

Both men made strong cases and Eisenhower was torn between the two plans. Ultimately, though, he was influenced by pressure from the US to use the airborne forces again as soon as possible. On average, the Allied airborne units had lost around 40 per cent of their men in Normandy before being withdrawn to England and were now in the process of reforming as the 1st Allied Airborne Army. Created on 16 August as the result of British demands for coordinated airborne headquarters, three US and two British divisions, along with a Polish Brigade, had been brought together under the command of Major-General Lewis H Brereton who, although he had no recent experience in airborne operations, had been involved in the planning of the proposed drop at Metz in 1918 and whose extensive command experience with the 9th Air Force gave him a working knowledge of the operations of IX Troop Carrier Command and an understanding of the needs of the airborne under his command. Under him, British General Frederick 'Boy' Browning and US General Matthew Ridgeway would act as corps commanders. Throughout that summer, the greatest airborne army the world would ever see, costly to train and equip, sat in England whilst plans were made and cancelled as ground forces overran their intended drop zones and the British 1st Airborne, who had rebelled when told they would not

take part in the Normandy landings, were now becoming more and more frustrated at being kept in their barracks. Eventually, Eisenhower gave in to demands to use them and gave Montgomery authorization to try his narrow advance. Montgomery's plan was divided into two linked operations:

> (1) MARKET: Three of the five divisions of General Brereton's 1st Allied Airborne Army would drop an 'airborne carpet' across Holland to seize bridges and other features under the tactical command of General Browning.
> (2) GARDEN: XXX Corps under Lieutenant-General Brian Horrocks would spearhead a push by the British 2nd Army to move north and link with the airborne en route.

The operation would begin with the US 101st Airborne Division, under Major General Maxwell D. Taylor, dropping in two locations just north of the XXX Corps current position to take the bridges north-west of Eindhoven at Son and Veghel. Then, north-east of them at Grave and Nijmegen, Brigadier-General James M Gavin's 82nd Airborne Division would take two more bridges, allowing XXX Corps to push towards the British 1st Airborne Division, under Major-General Roy Urquhart and the Polish 1st Independent Parachute Brigade who would drop to take the road bridge at Arnhem and rail bridge at Oosterbeek. Then, the 52nd (Lowland) Division would be airlifted in to reinforce the position. With these bridges under Allied control over two million men of XXX Corps, 2nd Army and the US 9th Army would cross the Rhine and smash into the Ruhr – Germany's industrial heartland.

To achieve this, the British forces at the extreme northern end of the route would need to hold their positions long enough for XXX Corps to make the sixty-mile dash along the airborne carpet to link up with them. It was expected to take a matter of days. To take and hold the bridges, Operation Market would need to deliver over 34,600 men to the battlefield. The thirty-six battalions would need all fifteen aircraft groups of the US IX Troop Carrier Command and sixteen squadrons of the RAF's 38 Group – currently using converted bombers on special operations missions in support of resistance groups (it was they who had flown the tug planes for the Dingson mission) – and a transport formation, 46 Group. In all, 1,274 USAAF and 164 RAF C-47 Dakotas along with 321 converted RAF bombers would be used. With German forces in the area believed to be under strength and in disarray, confidence was high that this would be the winning blow that would carry the Allies to Berlin within months. D-Day was set for Sunday, 17 September.

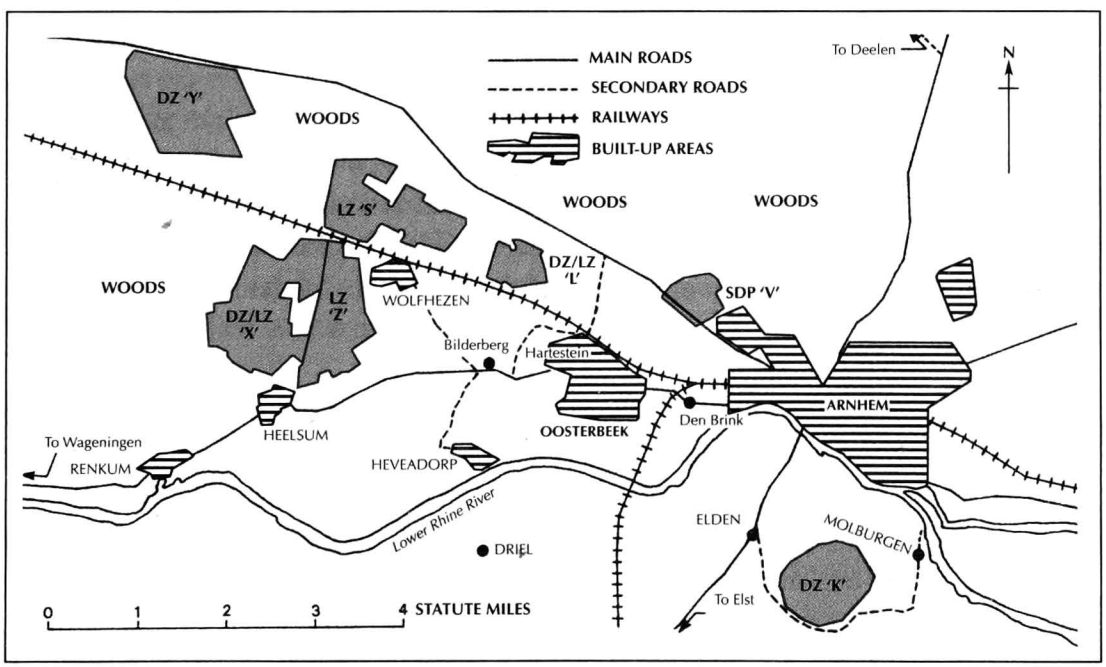
In a final meeting between Montgomery and Browning on 10 September, Browning asked how long it would take for Horrock's armour to cover the sixty miles. Two days, he was told. Looking at the map, Browning considered that an advance of fifteen miles a day more likely. 'We can hold it for four' he told

Montgomery, 'but sir, I think we may be going a bridge too far.'[29] General Stanislaw Sosabowski, commander of the Polish Brigade, was even less optimistic and demanded his orders in writing so that he would be able to show that the disaster he foresaw was not of his making.

The following day, Brereton was advised that the glider losses of Normandy had been made good with 2,160 Wacos, 104 US and 812 British Horsas and sixty-four of the giant Hamilcars available to land over 20,000 glider troops, 1,736 vehicles, 263 artillery pieces and 3,342 tons of ammunition and other supplies. Pilots, however, were in shorter supply and this time no US glider would fly with two pilots. Worse, there would not be capacity in Troop Carrier Command for the full load to be carried in one lift. The drops and landings would have to be carried out piecemeal over three days.

To capture the Arnhem bridge, the British needed to be able to reach it quickly but heavy concentrations of flak around Arnhem had been reported and the only landing zones identified as suitable for use by the laden gliders lay six to eight miles from the bridge itself. Two days before D-Day, Major Brian Urquhart, the divisional intelligence officer, presented five photographs to Browning showing tanks in the Arnhem area but his concerns were dismissed. When he continued to express his belief that there were stronger forces in the area than previously reported, he was ordered to take sick leave for 'exhaustion'.

D-Day dawned bright and sunny in England. During the night, flak batteries along the air corridors had come under heavy air attack from RAF bombers. The attacks continued into the morning with 200 Lancasters and twenty-three Mosquitoes bombing more batteries along the Dutch coast. Immediately behind



Arnhem landing zone.

them, 852 B-17s dropped 3,140 tons of bombs on 117 known flak positions. Barely had the dust settled when, at 1010hrs, pathfinders of the 21st Independent Parachute Company took off from RAF Fairford aboard Stirlings of 620 and 190 Squadrons. Arriving over Drop Zone 'X' and Landing Zone 'S' at 1240hrs, they dropped without difficulty and had set up the landing signals and Eureka beacons within fifteen minutes. As there had been no moon that night, the landings were planned to take place in daylight. The Luftwaffe threat was almost non-existent by this time and the lessons of Sicily and Normandy had shown that night drops carried a high risk of scattering forces away from their target areas. By shortening the time between successive waves and dropping in daylight, they would also be able to regroup far faster and more effectively to seize their objectives before the enemy could react.

Shortly after the arrival of the pathfinders, 143 troop planes carrying 1st Parachute Brigade and 331 Horsas, fourteen Hamilcars and nine Wacos bearing 1st Air Landing Brigade began to arrive in a formidable air armada. Thirty-nine gliders failed to reach the LZ but all those that made emergency landings were picked up safely by waiting air/sea rescue teams. Between 1300 and 1330hrs, gliders began to descend towards LZ 'S', north of the railway line through Wolfhezen and LZ 'Z' to the west amid small arms fire. The 7th Battalion King's Own Scottish Borderers landed safely, the only casualty on their LZ a pilot killed as he crashed into a tree. The cargoes were quickly unloaded and the men rallied to a piper playing 'Blue Bonnets over the Border' so that by 1500hrs, the battalion was fully formed and moving into a defensive perimeter around the LZ. By 1530hrs, 1st Airborne Division HQ was fully functioning.

Further south, Colonel Chatterton had been given permission to join the operation and was flying the glider carrying General Browning into Nijmegen, where he would assume control of Corps HQ. Browning made a somewhat incongruous figure:

> immaculately dressed in a Barathea battledress, complete with a highly polished Sam Browne belt, knife-edged creases to his trousers, leather revolver holster gleaming like fine glass, a kid glove on one hand with the other glove and a swagger cane in the other. He might have been on a visit to the Guards' Depot. [30]

Instead, he perched on an upturned Worthington's beer crate between the pilots' seats. Before leaving England, everyone had been given a tablet bearing the label 'Take it before you think you will be afraid'. Chatterton and his co-pilot, 'Andy' Andrews, had spent much of the previous evening trying to decide when this might be. They decided that halfway across the North Sea seemed a good time and downed their pills. The results were disappointing. Nothing happened.

Over Nijmegen, Chatterton released and came in for a bumpy but safe landing

among cabbages in an allotment. Browning, his first glider flight over, got out quickly. Chatterton later described how

> I started to panic then. I couldn't get out of my seat. I couldn't find my Sten gun. In fact, I was the opposite of 'Boy' Browning. Suddenly, Andy shouted at me: 'You've still got your earphones attached'. I realised then why I couldn't leave my seat, and I've never snatched at anything quite so quickly. Then I dragged myself from the cockpit to the door and jumped down among the cabbages. [31]

Outside, there was no sign of Browning. In his younger days, Browning had been an Olympic class athlete. Now, with his glider down on the US LZ just yards from the Reichswald forest marking the German border, he used his speed for a very personal purpose. Returning a few minutes later, he explained himself: 'I wanted to be the first British officer to pee in Germany.' [32]

Firing continued from flak batteries deeper into the forest but, as the massed US tow groups appeared even they fell silent, awed by the sheer scale of the invasion. John Lowden, approaching the LZ with an infantry sergeant as co-pilot, was told quietly 'I wouldn't presume to fly for you, but I think you're about to land in a minefield'.[33] A very rapid pull on the controls lifted the glider into the next field and a gentle landing. The LZ at Nijmegen had been expected to be opposed by 4,000 SS cadets rumoured to be in the area but resistance was light. Instead of the fanatical cadets Lowden had feared, he saw a group of bewildered Dutch civilians in their Sunday best approaching with white, frightened faces. The welcome for others was rather warmer. US pilot Arthur Kaplan had landed in a field near Chatterton's under sporadic mortar fire. He helped unload his cargo and set off with his passengers towards their RV. Passing a barn, they heard suspicious noises from inside and burst in. 'There – in one of the stalls – a paratrooper was making love to a very willing Dutch girl. He was quite profane at being interrupted, so we apologized and left . . . The guy couldn't have been on the ground more than an hour.'[34]

Not everyone was so lucky. Donald Orcutt, flying a C-47 with eighteen men of the 82nd into a drop zone 500 yards from the edge of the forest, dropped to fifty feet for a fast turnaround and

> it was only then I spotted a German 88mm antiaircraft guncrew up ahead and only five hundred yards from the edge of the drop zone. The 88 was slightly off to my left and pointed directly at us. I distinctly remember the image of the gun crew. One man was naked from the waist up, the second guy had on only his long johns and boots, and the third guy, a sergeant who was completely dressed as though about to answer roll call, pulled the lanyard just a moment before we roared over. I didn't see the muzzle flash. The three Germans looked directly up at us as we

> barrelled by. They must have taken a hell of a blast from our prop wash and wing down wash. The shot missed, obviously, or I wouldn't be here to talk about it. [35]

Elsewhere, a flak shell tore through the floor of a plane carrying paratroopers of the 101st. 'Now they give us a latrine!' one shouted to his fellow passengers. Private Robert Bryce, braced in the door of a low flying C-47, saw Dutch civilians 300 feet below making the 'V-Victory' sign. 'They're giving us two to one we don't make it!' he told the men behind him.

Across the airborne carpet, the landings were meeting varying levels of success. In marked contrast to the Normandy drop, the 82nd Airborne Division had 89 per cent of troops and 84 per cent of gliders landed on or within 1,000 yards of their correct landing zones. The 101st had had equal success in the drop, met only light resistance and captured four of the five bridges assigned to them. Then, after being held up by German anti-tank guns, they approached the bridge at Son. Suddenly, as they reached it, it exploded. Things had started to go wrong.

By nightfall, XXX Corps had covered only seven miles from their start point. They had been expected in Eindhoven by 1700hrs and already the advance was four hours behind schedule. Narrow roads choked with tanks caused considerable delay in bringing forward engineers and their equipment and it would be another twenty-four hours before they reached the Son bridge and could complete repairs. Five miles to their west, Colonel John Michaelis and the men of Company H of the 502nd Parachute Infantry Regiment had identified two more bridges and a fight for control was under way but for now they remained intact.

At Arnhem, as the paratroopers rushed towards the bridges across the Rhine against fierce opposition, the glider pilots, a battalion each of the KOSB and the Borders and half a battalion of the South Staffords formed a defensive perimeter around the LZs to secure them for the next lift. Whether their contribution to the battle in Arnhem itself could have influenced the final outcome is open to debate but certainly the additional punch they could have provided would have made the initial seizure of the bridge more likely. So, for the vital first twenty-four hours, they sat on their LZs and listened to sounds of fighting to the east.

On D+1, poor weather hampered the takeoff of the second lift in a delay that undoubtedly saved hundreds of lives. Copies of the operational plan had been found by a German patrol in a wrecked glider and were now in the hands of Generals Model at Arnhem and Student near Nijmegen. Both suspected the plans were fake because they were too detailed, too precise. The Luftwaffe, however, accepted them and, at 1000hrs, scrambled every available fighter to intercept the expected glider formations. A ground attack had also been launched from the Reichswald Forest that had temporarily captured the LZs around Nijmegen and might have created a killing field that made Normandy's LZ 'W' seem tame by comparison, had the weather delay not given the Americans time

to counterattack. They were retaken shortly before the first aircraft arrived but the Germans could not be dislodged completely. A warning was sent to land on the western edge, away from the treeline, but it was too late. The second lift arrived under heavy fire. Tug pilots failed to spot hundreds of gliders littering the day before's LZs and General Gavin watched helplessly as twenty-five tow combinations flew overhead carrying badly needed guns deep into Germany itself. The 320th Field Artillery was forced to defend its landing position until nightfall and then try to make its way ten miles back to American lines, bringing with it 160 airborne troopers, twenty-two glider pilots, ten jeeps and two field guns.

Of 294 gliders setting out for the Arnhem LZs, 270 had landed by 1530hrs but this time, warned by Luftwaffe command, the flak was even heavier. Sergeant Tom Pearce landed after his glider was hit by a burst that punched a huge hole in his port wing and left 'a huge dent as if a giant had pushed with two fists' in his tail. From the ground, he watched as a Horsa cast off at 2,000 feet and was narrowly missed by flak:

> the glider almost immediately went into a vertical dive; I thought it was doing something like four hundred miles an hour. I thought it was going straight in, but suddenly at about five hundred feet it levelled off. The strain of the pullout was so great that it broke the back of the glider. It travelled along through the air in this V shape with the rear of the fuselage at a sharp angle to the rest of the glider. It went along for three or four hundred yards and then hit a ploughed field. The cockpit broke loose and barrelled along the ground like a huge top. The two pilots who had been strapped in got out without a scratch, but the four men in the back, the gun crew, were flung out of the sides of the Horsa. The only one who was hurt had a fractured ankle.[36]

At 0600hrs on D+2, the Guards Armoured Division began to cross the Son bridge. By noon they were within sight of Nijmegen. It seemed that the plan might work if the American troops could keep what some were already calling 'Hell's Highway' open. To do that, they needed resupply. Fog in England prevented takeoff and the lift was delayed in the hope that it would burn off by afternoon. It didn't. The weather got worse. With glider pilots unable to see their tugs and flying at just 200 feet across the Channel to try to get below the cloud cover, many gliders were lost or forced to put down at airfields in France. Flight Officer George Brennan recalls flying over the sea 'at an altitude of thirty feet, the tug prop blast kicking up a spray over our windshield'. Over Holland, flak hit the aircraft, wounding Brennan and puncturing petrol cans aboard his glider. A spark ignited the spilled fuel and caused flash burns to his face, eyes and hands. Beside him, an artillery sergeant was hit by a shell splinter which entered his scrotum. Despite the injuries, Brennan managed a good landing on the correct

LZ near Veghel. Scrambling out of the glider under fire, he began to crawl towards a nearby ditch. Turning to urge the sergeant to hurry, Brennan saw him calmly drop his trousers saying 'I want to see if all this hurrying is worthwhile'. It was and he was relieved to find a large wound in his thigh but nothing broken.[37]

As the weather worsened, so too did German resistance. Heavy artillery fire stalled the British tanks on the banks of the River Waal. Gavin proposed sending a battalion of men across in boats to attack the north end of the bridge as the British rushed the south. To do this, he needed to withdraw a battalion from the line. The only troops available to plug that gap were the glider pilots of the 50th Troop Carrier Wing under Major Hugh Nevins. The lightly armed pilots, bivouacked west of Groesbeek, were ill-equipped to do the job but at 2200hrs, Nevin spoke to them and explained the situation, asking for 295 volunteers. It was pitch dark. 'I don't know how many stepped forward, but with tears in my eyes, I selected the first two hundred ninety-five men in the line, touching and counting each man. I was very proud of them.' They held off an armoured attack by Tiger tanks until noon on 21 September.[38]

Over the following days, only a very few gliders were able to reach Holland. In England, tension rose among pilots waiting to go. At his Nottingham base, First Lieutenant Sam Davis Jr waited days but by the evening of 22 September had had enough. Slipping off base, he went to visit his girlfriend and stayed over at her parents' home. He woke the next day to the sound of aircraft engines and

George Chatterton DSO, OBE

After a twenty-one-year career spanning all three services, Brigadier Chatterton retired in 1946 and his Surrey home became an open house for former pilots. 'Himself', as he was affectionately known, later worked at the Mansion House under Sir Frederick Hoare, Bt. as Lord Mayor of London. In 1962, the mayor took as his theme 'Youth and Leadership' and as a result the Upward Bound Trust was born.

The trust was established to encourage young people aged 16–21 to experience flying at a glider school run by former Glider Pilot Regiment instructors recruited by Chatterton. Today it continues to provide gliding instruction for young people at around a tenth of the price charged by other organizations and is proud of its connections with the regiment.

As well as the Upward Bound Trust, he also became Chairman of the Lady Hoare Trust for Physically Disabled Children and was also a Trustee of the Army Air Corps Museum at Middle Wallop. His own account of the regiment, *The Wings of Pegasus: The Story of the Glider Pilot Regiment* remains widely available.

he raced into the street, frantically trying to flag down a passing car, imagining himself 'in Leavenworth or in front of a firing squad'.[39] Eventually, he managed to catch a bus, arriving just in time to grab a helmet and weapon and drag his replacement from his glider. Davis was probably the only man in Holland to fight in his full-dress Class A uniform.

By now, though, it was clear that the battle for Arnhem had been lost. Planners had counted on at least three consecutive days of good weather to achieve success. In England, General Brereton looked out of his office window and couldn't see a flagpole fifty feet away. In frustration, he hurled his hat at a map of Europe on his wall. In Holland the weather was clear as British tanks continued to push forward. Chatterton looked on as a Guards officer casually talked of rushing a bridge 'as though he were saying "Yes sir, I would like another glass of sherry"'.[40] Chatterton, forced into the position of spectator, could only stand idly by while 1,200 carefully selected and trained men of his regiment fought and died just a few miles away.

At Arnhem, the glider pilots had moved with their battalions into a defensive perimeter around the Hartenstein Hotel, the divisional headquarters in the suburb of Oosterbeek. A Glider Pilot Regiment unit had formed and had established positions on both the east and west flank but many other pilots had stayed with the men they had brought in, often taking command as casualties mounted. Sergeant-Major Tilley now commanded a battalion, Lieutenant-Colonel Murray an entire brigade. Major F A S 'Tony' Murray of the GPR led a defence against an armoured attack until he was wounded in the throat and taken to a dressing station where British and German orderlies were working side by side. His wound dressed, Murray calmly walked out of the dressing station (now behind German lines) and found his way back to his men. Everywhere, Chatterton's 'total soldiers' proved their worth, leading fighting patrols and steadying infantry under mortar barrages so heavy that at one point bombs landed at a rate of one every four seconds for hours at a time. Despite this, morale remained high. Louis Hagen, a German-born Jewish pilot whose identity discs claimed him to be 'Lewis Haig', was among those defending a row of houses near the Hartenstein. Published anonymously in 1945, his *Arnhem Lift* provides an excellent account of his experiences in which he describes the pilots he fought alongside, including

> our private miracle man. This glider pilot was the pride of our street, because by all the laws of nature he ought to have been dead, and instead he was doing the kitchen fatigues quite happily. A bullet had entered his right temple and exited through his left, leaving behind it a couple of neat little holes. He wasn't even knocked out of the fight by this, and had to be ordered sternly not to take part in combatant duties. Not only did he remain working in the kitchen all the time we were in our house, but he was able to retreat with us across the Rhine. The last we saw of him

> was sitting perkily in the back of an ambulance in Belgium, making rude signs at us as he passed.[41]

Confusion reigned throughout the area. A German field cashier took a wrong turning and his motorcycle sidecar, crammed with Reichsmarks, was soon in the hands of the Independent Parachute Company. A German supply truck driver, wearing a Dutch farmer's smock, might have succeeded in sneaking past a British roadblock – if he had remembered to take his helmet off. Major Ian Toler, commander of 'B' Squadron, had been joined on Monday by the incongruous figure of an RAF Squadron Leader in his smart uniform. The officer had been in charge of a radar unit travelling by glider whose tug aircraft had been shot down south of the river. The aircrew and the glider party had then made their way to the battle by crossing on the still operating ferry – paying full fare for the privilege. A few days later, Toler, sheltering in a cellar of the Hartenstein Hotel's tennis pavilion, was to experience yet another unusual visitor. One of the Germans held as a prisoner was a woman auxiliary who had been on leave in Arnhem as the attack began. Unwilling to squat in front of the other prisoners, Major Toler was asked if he would mind leaving the cellar to allow her some privacy.

> Rather grudgingly I left the comparative safety of the cellar with my co-pilot S/Sgt Shackleton, for the lady's convenience. She was an unconsiously long time and must have been in extremis! When we returned to the cellar it appeared to be completely flooded with urine and uninhabitable![42]

The woman, he decided, 'must have had a very large bladder'.

Earlier in the week, pilot Maurice Willoughby had been startled to see a group of senior officers scrambling through a garden under fire. Major-General Robert Urquhart had been cut off from his men since the previous day when he had tried to get through to the 1st Parachute Brigade and instead became trapped in the attic of a Dutch family home as German troops swarmed into the area. Now, as Willoughby watched, the general made another attempt to climb the wall and rejoin his HQ. Suddenly, another pilot, Major John Hemmings, appeared, placed both hands on the general's backside and, with a mighty push, sent him flying over. With a grin, Hemmings proudly announced 'I'll dine out on this one for months!'

Despite the humour, things were becoming desperate, but even where the fighting was at its fiercest, humanity won out. The enemy were so close that at night the pilots could hear them talking. Sergeant 'Andy' Andrews recalls a night when one of them

> started whistling and the tune sounded vaguely familiar. After a few bars I realized that the last time I had heard it was when we were fighting

> some German parachutists in a little town in southern Italy . . . I wondered if the whistler had been my enemy there too.[43]

The next day, Andrews found himself less than forty yards from a young German soldier looking through a hedge as though hunting for a bird's nest. Andrews lowered his weapon and let the man wander on, unaware of how close to death he had been.

The airborne troops had been asked to hold for two days. They had been prepared to stay for four. The divisional diary entry for 2144hrs on Thursday 21 September, the evening of the fifth day, recorded

> no knowledge of elements of Division in Arnhem for twenty-four hours. Balance of Division in very tight perimeter. Heavy mortaring and machine-gun fire . . . Our casualties are heavy. Rations stretched to utmost. Relief within twenty-four hours vital.[44]

They would hold for another four days. Rumours of a British breakthrough continued to give hope to the defenders but that night Staff Sergeant Leslie Gibbons wrote in his diary that 'we have already had too many false hopes'. Victory was a spent dream, what mattered now was survival. Urquhart sent two officers by boat across the Rhine to brief Browning on the situation.

With all hope gone, Montgomery ordered the withdrawal of the airborne from Arnhem on the morning of 25 September, four days after the final deadline for relief had come and gone. That evening, Captain Walchli gathered his pilots and told them 'keep your mouths shut, but we've had it; we're pulling out'.[45] He then explained what would happen. Glider pilots would act as guides, stationed at fifty yard intervals between the hotel and the river and would lead groups of men to waiting boats. The first groups would leave at 2200hrs. Their boots and equipment muffled by sheets and towels to prevent noise, slowly the airborne moved back in a shrinking perimeter. Discipline remained good and Les Gibbons, wounded in the hand, recalls a voice calling the wounded forward first. A paratrooper, spotting Gibbons's bandaged hand, pushed him forward. 'There was no panic, the others held back.'[46] When the boats were full, the stronger swimmers stripped and swam alongside but the strong current was too much for some. Lou Hagen remembers that 'the water was pleasantly warm, the air filling my battle smock kept me easily afloat' but the river was more dangerous than it seemed. Less than halfway across, Hagen found himself in difficulty. After a brief moment of panic,

> I turned over on my back to rest and pull myself together. I realised that I had to get rid of my Sten gun, but that it would be pretty difficult as it was strapped round my back. I had to let myself sink vertically, while I eased the gun up and over my head. A moment later

> I heard it go bubbling to the bottom. Next I methodically rid myself of all the impedimenta that my battle smock contained, also my boots and steel helmet. There were Sten gun mags, hand grenades, writing materials, my fountain pen and every conceivable thing I had imagined to save.[47]

Considerably lighter, he made it. Setting out with Hagen, former long-distance-swimming champion Captain J G Ogilvie, similarly laden, with a wound to his shoulder and still proudly wearing the kilt he had worn throughout, did not. Hagen saw him drifting downstream. He was never seen again.

Ironically, the glider pilots had been ordered to leave at the first opportunity to return to their bases for further landings. Now, they were among the last out. Over half the 1,300 men tasked to land in Holland were killed, wounded or missing. Some would later find their way back after evading capture, often for weeks. 'Andy' Andrews was flown back to his British base.

> We went to our Nissen huts where a fire was burning; blankets and sheets had been made up into comfortable looking beds. There were only two of us alone in a hut that held twenty-six beds. It was too much. Without a word, we dumped our kit and rifle on the bed and left.[48]

In the wake of Operation Market Garden, both sides evaluated the lessons. On 25 September, as British troops were beginning their withdrawal, General Gavin wrote to the commander of 9th Troop Carrier Command to complain about the behaviour of the US glider pilots.

> In looking back . . . one thing in most urgent need of correction [is] the method of handling our glider pilots. Despite their individual willingness to help, I feel they were definitely a liability to me . . . They frequently became involved in small unit actions . . . or simply left to visit nearby towns. Glider pilots without unit assignment . . . .improperly trained, aimlessly wandering about cause confusion and generally get in the way. I believe now that they should be assigned to airborne units, take training with the units, and have a certain number of hours allocated periodically for flight training.[49]

John Lowden, who after landing a Waco near Groesbeek had refused to lead a combat patrol, hitched a lift with a British convoy into Brussels and stayed there until Military Police, specially flown in from England, were sent to round up the glider pilots.

> . . . it was reliably 'rumoured' that a test case charging desertion in the face of the enemy had been brought against one of our own glider pilots

> who had visited Brussels. The case was dismissed on a technicality. The defence attorney proved that in the Market-Garden briefing, one of the glider pilots asked, 'After we hit the ground, what do we do then?' The briefing officer's response was, 'Don't worry about it, you'll find plenty to do!' This ambiguous statement was the key to the man's acquittal. It certainly saved a lot of us from going to trial.[50]

Many of the gliders had left Britain with slogans chalked on the sides – 'Up the Reds!', 'Up the fraulein's skirts!', 'We are the Al Capone gang' and more. A humourless German officer of the SS Panzer Grenadier Depot and 16th Reserve Battalion, evaluating the Allied airborne, was unsure whether this reflected 'the political convictions of the troops themselves, or whether it is due to Bolshevist opinions or American influence'. More usefully, the landings themselves had been accurately reported by ground troops and

> it may be learned from this that it is vitally important to attack the enemy immediately with any force available, not with any hope of destroying him, but to disturb his preparations for battle. It is not possible to destroy overwhelming forces with light forces, but one can pin him down to provide time to prepare counter-measures. The gliders are most vulnerable between casting off and landing.[51]

Expecting more mass attacks, the Germans began to prepare light mobile reserves to rush to the scene of any landings and hold them until heavier reinforcements arrived. Chatterton, though, had other ideas.

In the preparations for the Arnhem attack, Chatterton had proposed a *coup de main* landing alongside the bridge itself but his idea had quickly been dismissed.[52] Chatterton later recalled having been called a 'bloody murderer' by some fellow officers for even suggesting it. He remained convinced, though, that the strength of glider operations lay not in their being used as the airborne equivalent of landing craft – intended to deliver troops to the beach and nothing more – but that they worked best by allowing men to be delivered directly onto a given target. All the most successful operations to date proved it and the failure of Arnhem seemed to support his ideas. Fortunately, the RAF's 38 Group had now come under the command of Air Vice-Marshal Scarlett-Streatfield, a prewar acquaintance of Chatterton's and sympathetic to the needs of the Glider Pilot Regiment. Chatterton had, for some time, been working on a model he called 'tactical landings' which would involve gliders landing where company commanders wanted them rather than in massed LZs. They would land on top of the enemy according to the tactical requirements of the ground forces and with as little time between castoff and landing as possible. With the backing of Scarlett-Streatfield, the next operation would be a tactical landing.

Ironically, in the early days of the regiment, Air Vice-Marshal Arthur Harris,

Chief of the Air Staff, had claimed it would be disastrous to try to train army personnel to fly troop-carrying gliders, arguing that

> The idea that semi-skilled, unpicked personnel (infantry corporals have, I believe even been suggested) could, with a maximum of training, be entrusted with the piloting of these troop carriers is fantastic. Their operation is equivalent to forced landing the largest sized aircraft without engine aid – than which there is no higher test of piloting skill.[53]

Now, with glider pilot losses at Arnhem having devastated their ranks, Chatterton had no reserves. Training a 'total soldier' was a long process and time was a luxury he could not afford. With little choice if he were to bring the regiment back up to an effective force, he approached the RAF to request trained aircrews be transferred. Having first argued that gliders were too difficult for the army to fly, the RAF now claimed that, in the words of Sergeant-Pilot Lewis, gliders were 'an army job. To [the RAF] mind, gliders were boxes with wings on them'. It was only with the support of Air Chief Marshal Sir Peter Drummond, Director of RAF Training, that eventually 1,500 men were released for a rapid conversion course. Like their American counterparts, many glider pilots were now air force officers expected to become infantrymen for what promised to be the biggest operation yet.

As the new recruits began their training, a new threat emerged. In the winter of 1944, the Germans launched a counterattack in the Ardennes that threatened to stall the Allied advance. In 'the battle of the bulge', gliders would play an important role.

Operation Repulse – glider resupply of Bastogne, 26 December 1944

On the morning of 26 December 1944, pilots of the US 96th Squadron, 444th Troop Carrier Group were sleeping off their Christmas hangovers at their Orleans base when their glider officer came around requesting two volunteers for a combat mission. After many unsuccessful attempts to find anyone willing to fly, Second Lieutenant Charlton Corwin Jr and Flight Officer Benjamin Constantino asked him where to and were told that he didn't know. Nevertheless, they agreed to go. Within an hour they were airborne to Etain, where they picked up thirteen volunteer medics from the 12th Evacuation Hospital. When the request had been made there, it was assumed that the medical teams were to make a parachute drop. Untrained as paratroops, the doctors, medics and even several female nurses all volunteered anyway.

For the past week, men of the 82nd and 101st Airborne had been encircled in the town of Bastogne by a massive German counterattack through the Ardennes. Fighting had been heavy and by Christmas Day casualties were mounting to the

point where existing medical resources were about to be overwhelmed. Brigadier-General Anthony McAuliffe had requested medical supplies be delivered by air and Corwin and Constantino now found that they were to be the first flight of Operation Repulse – the aerial resupply of 'the battered bastards of Bastogne'.

An hour later, the lone glider, escorted by four P-47 Thunderbolt fighters, arrived over the besieged town. Landing in a snow-covered field north-west of town without a shot being fired, the medics were quickly transported to the hospital and got to work.

At the 98th Squadron, First Lieutenant Wallace Hammargen was also having difficulty finding volunteers to fly with him that morning. Telling those who did come forward to 'get your combat gear together and draw your ammo and three days rations and report to the operations room in forty-five minutes', Hammargen joined them at 1315hrs for the briefing. Twenty pilots would be carrying petrol into the town that afternoon.

The Germans had chosen not to reveal their positions for a single glider earlier in the day but now heavy fire erupted towards the next flight to attempt to cross the lines. With a highly inflammable load, the pilots worried most about tracer. Sure enough, Hammargen recalls, 'we were picking up intense ground fire from our left and right – and there were a lot of tracers'. Landing safely just after 1700hrs, Hammargen reported to a nearby unit. 'The major in charge said, "What are you carrying?" I said, "Gasoline." He said, "Thank God! We're at the bottom of the barrel". Gasoline was so scarce that armour had to start off without warming the engines.'[54]

The next day, more gliders were sent, each with only one pilot (who had been given a parachute). Second Lieutenant Mack Striplin was tasked to fly artillery shells into the perimeter. Cutting loose from his tug, he hit the ground fast on a downward slope and slid along like a sled. Briefly becoming airborne again as his aircraft leapt over a fifteen foot drop, he skidded through a wire fence, coming to rest just ten yards from the artillery position he had been sent to resupply. When he landed, the gun had been down to its last twenty rounds. He was one of the lucky ones – the 440th Group took 42 per cent of its entire casualties of the war in that single afternoon. Of one serial of fifty tow combinations, fifteen gliders were shot down and seventeen tow planes failed to return to their bases but over 50 tons of supplies were delivered safely.

By that evening, tanks of Patton's 3rd Army had broken through the encirclement and further resupply flights were cancelled. Over a thousand tons of ammunition, fuel and medical supplies had been delivered, 94 per cent of it directly on to the designated LZ. On 28 December, acting as escorts for the 540 German POWs captured by the 101st, the glider pilots left Bastogne.

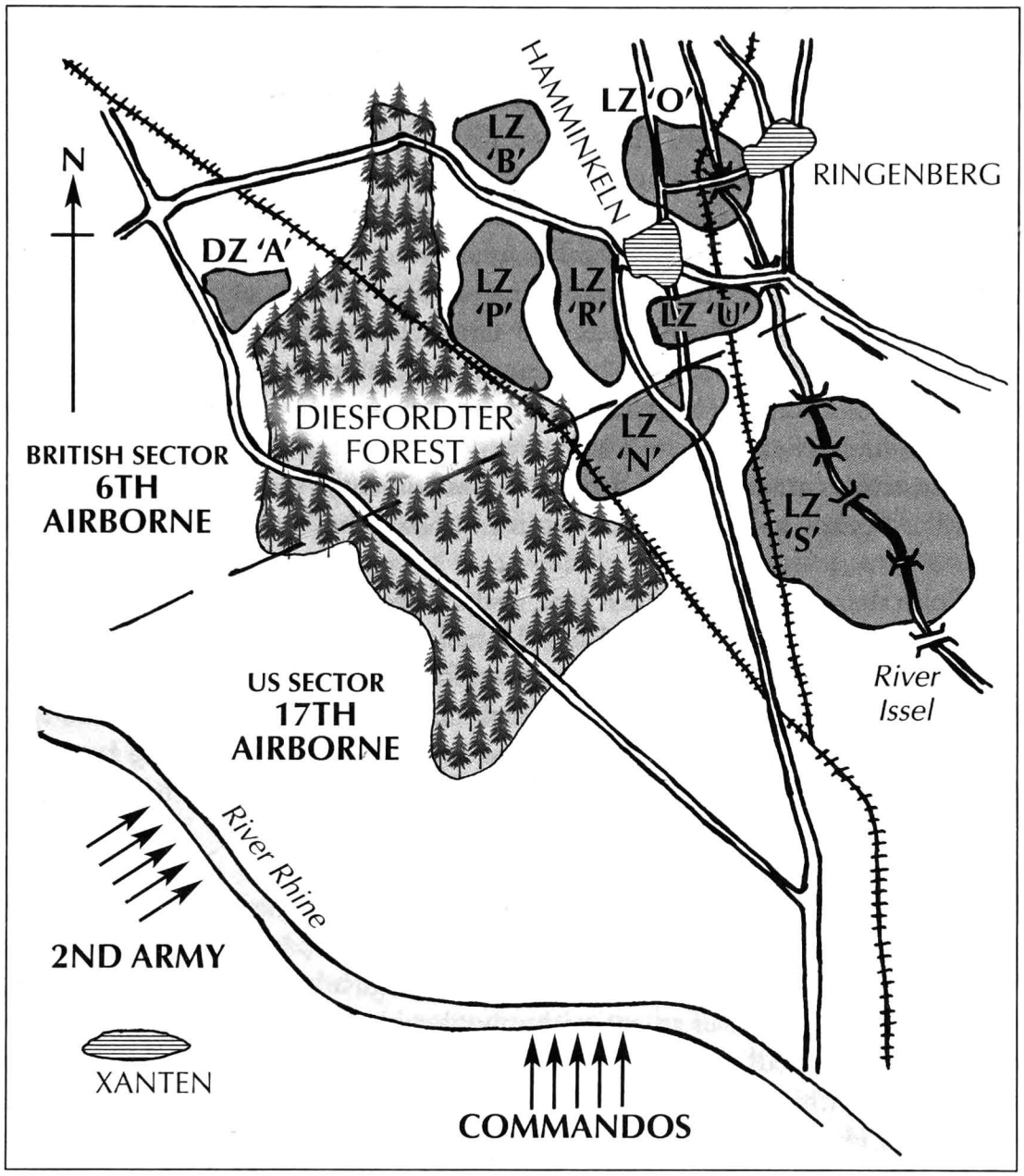
Operation Varsity – crossing the Rhine, 23 March 1945

The harsh lessons of Market Garden had been learned but, with the British 1st Airborne still out of action, the 6th fighting as infantry and the US 82nd and 101st regrouping after the German counterattack in the Ardennes, there seemed little scope for any more large-scale airborne operations until late February 1945. On 23 February Montgomery's 21st Army Group had started a successful push between the Meuse and the Rhine, clearing the western bank of the river in preparation for another thrust into Germany. Lieutenant-General Hodges's 1st Army had already seized the Ludendorff Bridge at Remagen (where glider snatches were being used to evacuate the wounded) and Patton's 3rd Army had established a bridgehead near Oppenheim. Montgomery's men would cross the Rhine in the north, trapping the Germans between his forces and those of Hodges and Patton driving in from the south. With the enemy caught in that vice, Eisenhower believed Eclipse, the planned airborne assault on Berlin, could probably end the war.

Montgomery offered Operation Plunder, an operation combining an airborne assault (codenamed Varsity) using the British 6th and the US 17th Airborne Divisions in support of a large-scale ground assault. He would control seventeen infantry, eight armoured and two airborne divisions, five armoured brigades, a Royal Marine brigade and another of Canadian infantry with support from over 35,000 vehicles. Thirty-six naval landing craft had been hauled forward on twenty-four-wheel low-loaders to ferry the force across the river from where it would strike east as an airborne armada brought in the paratroops to land on and around the Diersfordter Wald, an area of high, wooded ground overlooking the road and rail junctions at the town of Hamminkeln and the bridges over the River Issel. D-Day would be 23 March and the code to go would be a signal of 'two if by sea'.

The airborne mission looked quite simple. They were to seize the bridges over the Issel River (a task that once again fell to men of the Ox & Bucks Light Infantry) and rapidly clear the enemy from the Diersfordter Wald to prevent their reinforcements from reaching the beachhead. Once the crossing was secure, the ground elements would move forward and the airborne would join them, keeping the Germans on the run. The 17th Airborne was to land in the southern portion of the XVIII Airborne Corps zone, and the British 6th Airborne in the north. In all, the area measured just five miles deep and six wide, into which a total of nearly 22,000 airborne troops had to be inserted, making the airhead east of the Rhine the most congested airborne assault ever attempted. Unlike Arnhem's three days of lifts, the entire airborne drop, including resupply, would go down in just four hours.

During the night of 22 March, a giant smokescreen was laid down by artillery massed on the western bank as the land elements moved forward. For days, bombing attacks had sought to isolate the area but the sheer scale of the buildup was such that the Germans were aware of what was coming. Three divisions of



Rhine Crossing. Varsity landing zones.

the German 2nd Parachute Corps were in the area, supported by the 47th Panzer Division. It would be a tough fight.

At 0600hrs on 24 March, the first aircraft began to lift off carrying men of the 6th Airborne and formed an air fleet over Essex. The paras would jump at 1000hrs with gliders arriving between 1021 and 1100hrs. The first US gliders would land at 1036hrs and continue arriving until 1243hrs. At 0717hrs, the US 17th Airborne's aircraft began to lift off from their French bases to rendezvous with the British over the battlefield of Waterloo, by which time the British gliders alone formed a stream that took forty minutes to pass overhead. Together, they

began the hundred-mile run to their targets, four to six miles east of the Rhine, the two streams forming an armada that would take two and a half hours to pass a given point. Chatterton had been asked to supply crews for 2,000 British gliders but had managed only 440 Horsas and forty-eight Hamilcars, the Americans using 906 Wacos. Even with only half the number requested, it was by far the largest air operation of the war. Lieutenant Sydney St John, at 32 the 'old man' of the GPR, remembers that 'visibility was perfect and everywhere you looked there were tugs and gliders. It was extraordinary.' Earlier, at one of the many briefings and pep-talks the men had endured, a brigadier had exclaimed excitedly 'won't those blighters be amazed when we cross the Rhine!' Looking around, St John couldn't help but feel that anyone would be amazed to find 1,300 gliders suddenly heading towards him.[55]

As the troop carriers approached the Rhine, the huge smokescreen stood out. Brigadier Bourne saw it ahead as his glider crossed the Meuse.

> From there, I could see the Rhine, a silver streak, and beyond it a thick, black haze, for all the world like Manchester or Birmingham as seen from the air. For the moment, I wondered whether the bombing of Wesel, which had preceded the attack upon that town by Commando troops, had been mistimed. If this was so, then the whole landing zone would be obscured by the clouds of dust which would be blowing from the rubble created by the attack.[56]

A reporter, flying aboard a Halifax bomber, described 'a gigantic curtain over the battlefield, hiding all that was going on underneath'. Vic Miller, flying a Horsa, 'hung on, hoping for a gap, a glimpse of something. It was a total blank.' Later, other pilots would talk of an anti-airborne ploy by the Germans but, whatever the source, hundreds of gliders would soon be trying to descend through the thick screen with no idea what lay beneath.

Reporter Howard Cowan was aboard a Horsa as it cast off. 'Now', his sergeant pilot told him, 'is when you pray.'[57] Searching for gaps, Vic Miller had given up hope of finding his designated LZ when the smoke parted and he caught a glimpse of a road he recognized from the briefing. Turning to his RAF co-pilot, he shouted, 'for God's sake, if you see a space with a glider on it, we'll have a go'. As they broke through the bottom of the cloud, Miller was shocked to find himself down in the very field he had been searching for. Arnhem veteran 'Andy'Andrews had a rough landing after flak wounded his co-pilot and badly damaged the controls of his Horsa. Landing in a crowded field, he clipped the wing of another glider and was sent cartwheeling across the LZ.

> I was thrown through the front, and finished by sliding along the left side of my face, slightly cutting the corner of my left eye, but was otherwise unhurt. I went round pulling out people from the wreckage, all of

> whom were in a heap under the wings, on top of each other, with seating harness still strapped to their backs with part of the seat. I still cannot discover what happened to the three in the back. There were no bodies and they were not in their seats.[58]

The whole front of the Horsa was smashed, the wings had collapsed and the tail section had broken away and rolled into the middle of the field. Despite the smokescreen, 90 per cent of the British gliders landed as planned, but of the 416 that reached the LZs, only eighty-eight were undamaged by flak and small arms fire. Harry Antonopoulus, the ditching expert of Operation Buzzard, landed in one piece only to come under immediate machine-gun fire. 'That gun was so fast', he later claimed, 'that the bullets all came through one clean hole'. Scrabbling out, he found 'a nice, deep ditch with three or four American glider pilots in it' and decided to stay put.[59] By the evening, thirty-eight men of the GPR lay dead, seventy-seven more were wounded and 135 missing, a toll greater than either Normandy or Arnhem.

Before leaving, Major Ian Toler had visited his niece, Flying Officer Rosemary Britten, at the RAF base from which he would fly out the next day and asked her to come to watch his takeoff. Not content to watch the takeoff, Britten had managed to talk her way aboard *D-Dog* – a Halifax bomber that would act as a tug plane. Alongside her escape kit, she had packed powder and lipstick because, she recalled, 'I wanted to look like a German girl in case of baling out'. Over Holland, she saw the shattered towns and villages below and the vast smoke-screen over the Rhine and wished their glider luck as it cast off towards the dust and smoke. Immediately, the Halifax pilot began evasive manoeuvres to dodge the flak now directed at them in ever increasing amounts. A shell hit the aircraft, almost severing the control column and peppering the fuselage but miraculously missed the fuel tanks and the crew. As *D-Dog* limped back across the Rhine it was clear they were out of immediate danger from the battle below but it seemed certain they would be forced to bale out soon.

> By that time, I knew I was going to be either killed or court-martialled, and was amazed to find I didn't really mind either. I remember thinking that now I wouldn't have to live to a dreary old age, which was a good thing. But I could do with a year or two, now it had come to the point . . . George went back to the turret to get his hat, so I got mine too, just in case we survived, in which event, one might as well put up as good a show as possible.[60]

Fortunately, the plane made a safe landing at an American base at Merville, near Lille and Britten was flown home later to find that four crews had reported *D-Dog* shot down. 'I felt rather bad about turning up after all, and decided to acquire an operational twitch at least!'

The operation would also be a landmark for the American pilots. At his briefing for Varsity, John Lowden recalls being ordered to

> take no prisoners for at least seventy-two hours' after landing. Asked what to do if Germans surrendered, they were told 'take them someplace out of the way, like a house or a barn, and get rid of them. Either knife them or strangle them. But for Christ's sake, don't shoot them. Some of their comrades might hear that and decide to fight it out, rather than surrender.[61]

It was a shocking statement for air force officers to hear but one that told them that, this time, glider pilots would be expected to be real soldiers.

Three weeks before, Major-General William Miley, commander of the 17th Airborne Division, had briefed the glider operations officers of the 53rd Troop Carrier Wing's five groups on the plans for Varsity. His 194th Glider Infantry Regiment would need an extra infantry company if it was to carry out its assigned objective. That company would be made up of glider pilots after landing, making it unique in military history – an infantry company made up entirely of officers. With so many chiefs, and not a single Indian, command would go to Captain Charles Gordon, glider operations officer of the 435th Troop Carrier Group. The pilots underwent two weeks of intensive training in weapons and tactics with the 194th GIR to prepare themselves. Organized into four platoons, one for each of the group's squadrons (75th, 76th, 77th and 78th), the men were to assist the 17th Airborne Division in securing a crossroads of the Helzweg and Hessenweg north-east of Wesel, establish roadblocks and make contact with British forces north-east of the town. They also knew that, this time, the LZs would not have been secured by paratroopers first.

The Group's 144 gliders came under ground fire as soon as they released from their tugs, causing heavy casualties among the infantry and glider crews. The survivors made their way to their objective – half a dozen brick houses in the middle of a wide, open area. The men dug in during the afternoon and evacuated the civilian inhabitants to the rear. All but one family had left and, in appreciation of their not being evicted, the remaining family, an elderly couple with their pregnant daughter, had prepared a meal of stew and potatoes for the Americans. Towards dusk, German patrols scouted up to their positions and were fought off with a murderous burst of fire from the pilots. Flight Officer William Horn remembers that, 'all of a sudden, the German infantry started hyping themselves up with a weird sort of yelling and cheering and came at us in a Japanese banzai charge and we really poured it into them'. One of the Germans, a teenager of around 17, began to plead in English that he was wounded and had an uncle in Milwaukee but, thinking it may be a trap, the pilots left him where he was. He died during the night.

Around 2355hrs, a Ju88 bomber crashed into a field next to the crossroads,

coming to rest against the wreckage of a Waco. Flight Officer Oliver Faris was the first to reach the wreckage. Unable to see any markings in the darkness, he asked if the crew were British. 'No', answered one, 'we are Germans, but the war is over for us'. As the Americans rescued the trapped crewmen, a barrage of mortar fire fell around the site, heralding the start of an attack.

A few minutes later a German tank, supported by a large number of infantry, hit the crossroad defended by the 75th Platoon. A tank round hit a .50 calibre gun emplacement and another set fire to a crashed glider. By the light of the flames, Flight Officer Joseph Menard watched in horror as the barrel swung slowly towards him and began to fire his rifle at it, hoping against hope that a round might enter the muzzle and explode the shell before it could be fired. Then suddenly, an explosion rocked the tank and its gun fired early, hitting the ground and ricocheting over Menard's foxhole, missing him but leaving him with a slight wound and temporarily deafened. Flight Officer Elbert Jella's bazooka round had been enough to make the tank fall back, running over the 20 mm gun it was towing and, seeing what had happened, a second tank behind also withdrew.

At daybreak, Horn saw 'a lone German medic was out in front of us desperately trying to minister to a number of his wounded comrades but it was a losing battle'. Thirteen enemy dead lay around the crossroads and a sweep later recovered forty-five wounded. British forces reached the glider pilots and the 'Battle of Burp Gun Corner', as the forces newspaper *Stars and Stripes* called it, was over.[62] Although it received coverage in the 1 April edition of the paper, the fight soon faded into obscurity. It would not be until fifty years later, at the 435th Troop Carrier Reunion in October 1995, that Flight Officers Jella, Deshurley, Campbell and Hurley each were awarded the Silver Star for their defence against the tanks at a range of only fifteen yards. All the others who fought in the battle were awarded the Bronze Star, but many of the more than 280 men had died before their heroism was finally recognized.

In the British sector, Ian Toler found himself surrounded on his LZ by misplaced American troops but without hearing a shot for the first few minutes. He had landed short of an area raked by 88 mm fire but soon small arms rounds began to hit the glider. With a Bren gunner covering them from behind the wheels, Toler and his co-pilot, RAF Flying Officer George Telman, struggled to unload their Horsa, sawing through the joints to get it open. Once clear, he made his way to a nearby farmhouse where the German farmer's wife began to scream at him in German. Angrily, Toler shouted back 'Das is deine Kreig – this is your bloody war. You started it. If we want to use your house we jolly well will.' Realizing that there were pigeons in the loft that might be used for messages, he ordered them killed but relented when he found they were the pets of the farmer's young son, his anger suddenly gone as he saw the tears in the child's eyes and realized that these people were not his enemy.

For Toler, Varsity did not involve any fighting. Within a short time

> we heard the unmistakeable noise of tanks. Surely we weren't going to be attacked by Panzers? Then they appeared. The Sherman tanks of the Guards Armoured Division. What a wonderful sight. It brought a lump to my throat to see them as they roared past and to realise that they were now advancing into Germany.[63]

It was then that he was informed of the death of one of his fellow officers. Toler was now the only officer in the squadron to have survived Arnhem. Gathering together as many pilots as he could find, he led them back towards the Rhine, passing a large group of prisoners being herded along by an American trooper stripped to the waist and riding bareback on a horse. Amphibious trucks took them back to the western bank where a camp had been set up offering hot food and showers at the 'Rhine Hotel – Glider Pilots a Speciality'. Arriving back at their Down Ampney base, the pilots found a customs official demanding to know if they had anything to declare. He quickly got the message. American pilots of the 440th Group, meanwhile, established themselves in a Parisian brothel and cut cards to determine who would get the unit's allocation of medals for the operation.

Back in Britain, Chatterton immediately began planning the next operation. Even larger than Varsity, Operation Arena would land troops near Kassel to seize the airfields there and use them to fly in infantry deep inside Germany. The Allied advance soon made the plan redundant. Next would be Operation Eclipse, the attack on Berlin itself. It had barely reached the end of the planning stage when the Russian steamroller reached the city. The Allied glider war was over.

Chapter Eight

War behind the lines: Russian glider operations 1941–1945

In 1923, Soviet authorities sponsored the first all-Soviet Union gliding contest at the Moscow Gliding Club as a way of encouraging sport gliding. Within ten years, they could claim 57,000 trained glider pilots at ten gliding schools and 230 gliding stations and a glider factory capable of producing 900 primary trainers and 300 training gliders per year under the management of leading designer Oleg Antonov. In January 1931, the Ninth Party Congress announced a massive expansion in its glider programme with the aims of building a pool of pilots, developing new designs and techniques and establishing as many world records as possible. Almost immediately, eighty leading pilots and designers gathered at Koktabel airfield and began a rigorous thirty-six days of flight testing of over twenty types of glider, setting six new Russian records in the process. Throughout that year, Russian pilots continued to push the boundaries of glider flight – V A Stepanchenok looped his glider 115 times and flew upside down for over a minute and B Borodin flew two passengers for four hours in a single flight as, behind the scenes, the military took a great interest in their progress. Following a series of exercises conducted in 1929 and 1930, M. N. Tukhachevsky, then commander of the Leningrad Military District, prepared a study on the 'Action of Airborne Units in Offensive Operations' and presented it to the Revoensovet (Revolutionary Military Soviet), along with a plan for an airborne motorized division for use as an operational landing force. Alongside Tukhachevsky's work, an article by the Chief of Staff of the Voenno-Vozdushnvi sil (Red Army Air Force), A N Lapchinsky and N P Ivanov investigated the more detailed aspects of airborne operations and, in a country as vast as the Soviet Union, the concept of airborne warfare was very attractive. In 1931, just one year after a trial jump had been demonstrated, a fifteen-man team dropped by parachute in a raid on a bandit stronghold at Basmach in Central Asia. The raid was such a success that in February 1932 a Red Army order 'Temporary Regulation on the Organization of Deep Battle' discussed the use of airborne forces, describing them as 'army operational-tactical units that coordinated closely with ground forces'. In the event of war, it was suggested, the airborne forces would undertake sabotage missions and raids on enemy lines of communication, depots and headquarters, as well as blocking enemy reinforcement or withdrawal.

Having set out their ideas of airborne operations, the Red Army command set about tackling the problems of how they could be put into practice. The Training Directorate issued a series of directives that outlined four operational categories of training needs: parachute, glider, airlanding and combined operations. In April 1932, the 'Regulations Concerning the Special Design Bureau (OKB) of the VVS, RKKA' (Raboche-Krest'yanskaya Krasnaya Armiya, Workers and Peasants Red Army) handed responsibility for developing air assault equipment to the OKB, with a particular emphasis on the production of gliders and modifying the TB-1 bomber to transport airborne troops. By the end of the year, an 18-year-old designer, Boris Dimitiyevitch Urlapov, working as part of a team at the Institute of Narkomtyazhproma had developed an idea from the head of the OKB, Pavel Ingatievitch Grokhovski and produced the G-63 glider. With a 28 m wingspan, the glider could be towed by reconnaissance aircraft and carry between sixteen and eighteen troops lying prone in spaces in the wings, ready to drop by parachute over the target. The aircraft was named the 'Jakov Alknisa' after the Commanding General of the Red Army Air Force and took part in the autumn manoeuvres of the Red Army in 1933. Despite these initial advances, Tukhachesky, the founding father of the Soviet airborne, and Alknisa both fell victim to Stalin's purge of the military in 1937–8 that robbed the Red Army of some of its best thinkers. The result was that the development of glider and airborne operations stalled – but not before Soviet displays had inspired men like German observers Student and Udet.

In 1939, small groups of Russians made combat jumps into action near Summa and Petsano in Finland and by 1941 five corps of airborne troops had been created with a Military Glider Training School at Saratov and nearly 50,000 parachute-trained men available but it was not until after the German invasion began in June 1941 that the Russian High Command abruptly ordered the development of transport gliders to be stepped up. A project competition had been set up in January 1940 and work was already under way, so within two months, designers Vladimir Gribowski and Oleg Antonov had produced troop-carrying gliders capable of transporting men and equipment inside the fuselage. The G-11 (Gribowski, eleven man – also known as the G29) was first flown on 1 September 1941, and over 300 would eventually be produced in two factories at Shumerlya (factory no. 471) and Kozlovka village (factory no. 494) between late 1941 and mid-1942 when production was switched because the demand for combat aircraft overtook the need for transport. Production started again in 1944 in Riazan and by October of that year a dual control training variant, the G-11U glider, appeared and remained in production until 1948.

Designated the A-7 (Antonov, seven passenger – also known as the RF-8, Rot Front-8), Antonov's glider was based on a 1939 design and was similar in appearance to the German DFS 230. The A-7 was an enlarged variant of a prewar sports glider, the RF-7, and experiments showed it capable of carrying seven men or around 900 kg of equipment. In all about 400 were built, including an experi-

mental tanker variant carrying 1,000 litres of fuel but this did not go into production. Production began in the Lithuanian city of Kaunas but had to be hastily evacuated as the country was overrun.

During experiments over the previous decade, the Soviets had been among several countries attempting various means of delivering heavy equipment and armour by air. The American engineer Walter Christie had experimented with a design for a flying tank and the Royal Air Force had tested a one-third-scale prototype known as the 'Baynes Bat', a flying wing intended to carry a light tank. It flew well, but no suitable tank was available for the project to be taken further. Small 'tankettes' such as the T-27 could simply be strapped into the bomb bay of heavy bombers like the TB-3 and dropped with or without parachutes from low-level (some reports suggest that during the 1940 occupation of Bessarabia, light tanks may have been dropped from a few metres by TB-3 bombers, to roll to a stop with the clutch in neutral). The problem was that the crews dropped separately and could be unable to reach their vehicles to bring them into action. Gliders, on the other hand, would allow crews to arrive at the drop zone along with their vehicles and minimize exposure of the valuable towing aircraft to fire. The Soviet Air Force ordered Oleg Antonov to design a glider for landing tanks.

Instead of designing a glider to carry a tank, Antonov came up with an ambitious design to turn a tank into a glider, the result was the Antonov A-40 Krylya Tanka (winged tank). A T-60 light tank was given a detachable cradle bearing large wood and fabric biplane wings and twin tail with the idea that the tank could glide into the battlefield, drop its wings and be ready to fight within minutes. A stripped-down prototype flew on 2 September 1942 piloted by the 'Honourable Master of Gliding', Sergey Nikolayevich Anokhin. The design flew well but the weight – even with weapons, ammunition and all non-essential parts removed – proved too much for the tug aircraft to maintain the glide speed of 160km/h needed to keep it flying and the project was abandoned.

The rapid advance of the Germans forced the Russians to evacuate their production lines further east and, with priority given to combat aircraft, glider production fell and very few air operations were carried out. Those that were proved disastrous. On 27 January 1942, as the Soviet counteroffensive got under way, the 4th Airborne Corps began a series of night drops of paratroopers in the German rear in the area south-west of Vyazma using forty civilian and twenty-two military aircraft with a small fighter escort. From the outset, the operation went badly and after six nights, only 2,100 men from the 10,000-man airborne corps had been dropped. A combination of bad weather and the pilots' inexperience with night navigation meant that, of those, most landed twenty kilometres south of the intended drop zone. The intended five or six sorties each night had not taken into account the weather conditions, aircraft failures or combat losses, all compounded by the failure to conceal the buildup of troops at the airfields, which led to an attack by German bombers that closed one and damaged others, reducing their capacity so only two to three sorties per night

were actually possible. The paratroops who landed, however, did succeed in interdicting lines of communication in the German rear area for almost three weeks, in part because of their linkup with the 1st Guards Cavalry Corps on 6 February.

A second series of night landings near Yukhnov between 17 and 23 February also saw paratroops spread out over a large area because of inaccurate drops and the loss of most of their supplies. Some eventually joined partisan groups in the area whilst the main body, lacking artillery and air support, found itself restricted to night operations. The planned two- to three-day operation stretched to almost five months until, with the help of a battalion of reinforcements dropped into the area on 15–16 April, the battered remnants of the 4th Airborne Corps managed to break through two encirclements and reach the Russian lines in late May. Although it had created considerable havoc in the German rear, the corps had been decimated.

Despite the problems at Vyazma, the Soviets attempted a second night drop using an entire airborne corps on 24–25 September 1943 to seize a bridgehead at the Bukrin Bend on the Dnieper. The mission of the airborne corps, as established by General Vatutin, was to secure a bridgehead on the right bank of the Dnieper River near Velikyi Bukrin and specifically to prevent German counter-attacks from penetrating the west bank of the Dnieper in the sector from Kanev to Traktomirov. A defensive perimeter thirty kilometres deep and fifteen to twenty kilometres wide would be set up with Colonel Krasovsky's 1st Guards Airborne Brigade landing near Lazurtsy, Beresnyagi and Grishentsy to prevent enemy counterattacks towards Kurifovka and Bobritsa and Colonel Goncharov's 3rd Guards Airborne Brigade preventing a German advance to Chernyshi and Buchak by securing a line from Lipovyi Rog to Makedony. The 3rd Brigade would then hold the line until units of the 40th Army arrived from Traktomirov and Zarubentsy. Meanwhile Lieutenant-Colonel Sidorchuk's 5th Guards Airborne Brigade would secure a defensive line from Gorkavshchina through Stepantsy to Kostyanets and to prevent an enemy advance to the Dnieper from the south and south-west. The landing would take place over two nights and would require fifty PS-84 aircraft, 150 IL-4/B-25 aircraft and around forty-five A-7 and G-11 gliders carrying heavy weapons. The aircraft would lift the force from Smorodino and Bogodukhov airfields near Lebedin, a distance of 175–200 kilometres from the drop zones and would be expected to make two or three sorties each night. The 1st and 5th Guards Airborne brigades would land on the first night, 3rd Guards Airborne Brigade the next. The gliders carrying artillery would land during the intervals between the drops of the parachute echelons. Although the concept was excellent, the planning, timing and execution of the operation produced results similar to those in 1942.

On 19 September, General G K Zhukov approved the plan, stressing that the operations had to be coordinated with those of the Voronezh Front and ordering Vatutin to update brigade missions accordingly. As the plans were being drawn

up, the Soviet advance had seen lead elements cross the Dnieper River on 21/22 September. A series of unforeseen events then followed which threw the carefully laid plans into chaos. First, there were not enough rail transport cars to move the corps and its supplies to the airfields in time. Bad weather then prevented the transports from assembling the necessary aircraft at the correct airfields and only eight planes arrived at the right place at the right time. Plans were hastily changed and new orders issued by General Vatutin from 40th Army Headquarters on the morning of 23 September. Consequently, instead of three brigades dropping over two nights, only the two brigades that could complete their movement to the departure airfields in time were to be used. The drop itself was delayed by twenty-four hours to take place the next night and the delays and the last-minute changes in plans caused near chaos in command channels. The corps commander and his staff needed time to adapt missions and make decisions in response to the changes, which meant that orders to subordinate units could not be issued until the 24th. At brigade level, commanders needed to study the changes and issued new orders just one and a half hours before the troops loaded onto the aircraft. As a result, company commanders had only fifteen minutes before takeoff to brief their platoon officers and they, in turn, passed the information to their men during the flight to the drop zone itself.

Throughout the day, men, supplies and support aircraft were being assembled at the departure airfields but by the time the 5th Guards Airborne Brigade had assembled, bad weather had prevented many aircraft getting through and only forty-eight of the required sixty-five LL-2 transports had arrived. Aircraft commanders, for safety reasons, insisted on cutting back on their loads, allowing only fifteen to eighteen units of men or cargo instead of the planned twenty on each aircraft. As these changes disrupted planning calculations, commanders were forced to reallocate loads just before takeoff, resulting in piles of supplies being left sitting on the runway.

At 1830hrs, 4,575 men of the 3rd Guards Airborne Brigade finally took off, with the lead elements of 5th Brigade starting out two hours later. As the lift got under way, it became apparent that the capacity of the fuel trucks at the airfields was less than expected, reducing the number of refuelled aircraft available so that the first wave, due to takeoff ten minutes before the second, could not complete its launch on time. As soon as an aircraft had been fuelled, it took off and soon both waves became intermingled. As they returned for the next sortie, the refuelling problems meant that paratroopers shifted from one plane to another in search of an earlier departing flight. Only 298 of the planned 500 sorties took off that night, leaving around 30 per cent of the two brigades behind.

Of those who did take off, the inadequately trained pilots – despite exercises held late that summer along the Moskva River on terrain similar to the Dnieper – were ill prepared for the heavy flak they encountered. One aircraft dropped its men into the Dnieper River, another into Russian positions on the eastern bank. Two more dropped their men in what turned out to be a relatively safe area far

behind the German lines. A total of thirteen aircraft simply returned to their base without dropping their men, further complicating the already confused flight schedule. Among those who reached the drop zones, the pilots' sometimes violent evasive action did not improve the accuracy of the drop, with the paratroopers jumping from aircraft flying at 200km/h at altitudes anywhere between 600 and 2,000 m. Instead of landing in the planned, lightly defended and relatively compact, ten by fourteen kilometre area, they found themselves scattered over an area nearer to thirty by ninety kilometres infested with German defensive positions and right on top of three German divisions. The storm that had prevented reconnaissance flights noticing the buildup of German troops also prevented the use of pathfinder teams and the lead elements of the Russian paratroop force jumped into the Dubari-Grushevo area just as the first troops of the main body of the 19th Panzer Division reached it. Colonel E Binder of the 19th Division later recalled:

> [Our] Reconnaissance Battalion was fighting west of Zarubentsy. The armoured personnel carrier battalion of the 73rd Panzer Grenadier Regiment, with elements of the division staff of the 19th Panzer Division, was advancing by way of Pii-Potaptsy-Dudari [Dubari]-Kolesishche; it was followed by the main body of the 73rd Panzer Grenadier Regiment, and the 74th Panzer Grenadier Regiment. Behind these forces came the rest of the division, including the 19th Panzer Regiment. After the Germans had reached Dudari [Dubari], the first Russian parachutists jumped from a transport plane flying at an altitude of 600 to 700 metres directly above the little village. While these parachutists were still in the air they were taken under fire by machine guns and a 20mm four-barrelled flak gun. A half minute or a minute later, the second plane came over and thereafter at like intervals other planes followed, flying in single file; only seldom did two crafts fly side by side.
>
> The parachutists were fired on while they were still in the air with all available weapons, including rifles and the flak guns which had in the meantime been set up. As a result the fourteenth or fifteenth plane turned off in a northerly direction and dropped its parachutists in the area of Romashki. These parachutists were immediately taken under fire by men of the supply trains, repair teams, and maintenance sections of the 19th Panzer Reconnaissance Battalion. The jumps, which continued for one to one and a half hours, steadily became more irregular, one of the reasons being the swift German counteraction and another the signal lights going aloft on all sides. The parachutists were dropped without any plan. Wherever they landed they were immediately attacked. Those who could took cover in the numerous clefts in the ground. With the parachutists split up in small groups, the fate of the undertaking was

> sealed. During the night great numbers of prisoners were brought in. The rest of the parachutists were destroyed the next day.[1]

In all, 120 gliders and their B-25, Il-4 and LI-2 tugs had been assembled on airfields around Kharkov ready to follow up on the jumps but the strong winds dispersed them. Some did manage to link up with the ground forces but by then the operation was already a failure. Between Dubari and Rossava, the Germans reported finding 1,500 parachutes in the first twenty-four hours, as well as 692 Soviet dead and 209 prisoners, whilst near Grushevo, the 3rd Company, 73rd Panzer Grenadier Regiment suffered heavy losses to eliminate an estimated 150 Soviet paratroopers. Once on the ground, the paratroops and whatever equipment they had managed to find were too scattered for any hope of a cohesive action and their lack of radios meant they were unable to establish contact with each other or with 40th Army HQ so instead they began fighting a guerrilla war from the deep forests, operating in approximately thirty-five small groups and gradually regrouping into a corps unit. Around 1,000 paratroopers finally linked up with the advancing forces of the Second Ukrainian Front in mid-November. The attack had been a fiasco and a furious Stalin banned any further attempts at large-scale drops.

Gliders had not played a major role in the Dnieper assault and they do not appear to have been used in other offensive operations. Instead, like their German counterparts, Russian glider pilots found themselves involved in high-risk resupply operations, such as Operation Antifris in November 1942 when a fleet of A-7 and G-11 gliders under the command of Dmitri Koshits were towed from the Medveshii Osero airfield outside Moscow to Saratov and from there to Stalingrad. The delivery of much needed antifreeze for the Soviet tanks enabled the stalled counterattack to continue. More dangerous still, gliders provided the vital link between the Soviet High Command and partisan groups operating deep in enemy territory. The German advances of 1941 had rapidly overrun huge areas of the country, trapping thousands of Russians behind German lines. The remnants of Red Army units, Communist and Komsomol officials and Soviet activists formed the core of what would become a massive partisan movement and, as early as August 1941, Soviet estimates claimed some 231 detachments were already operating. By the end of 1941, 437 'seed' detachments had been formed with over 7,000 guerrillas in Belarus alone.

The difficulties facing the partisans grew as the frontline moved further away, leaving them with virtually no logistical support from the Soviet lines. Without any means of making contact with other groups and short of ammunition, medicine or food, the partisans fought brave but isolated and uncoordinated actions from the forests. Resupply flights by powered aircraft began but, as winter drew in, deep snow meant that they could no longer land. Parachute drops of supplies continued but there was still a need to land some items. Gliders offered a means of doing just that.

A headquarters was set up at Staraja Toropa, north-west of Moscow, commanded by Brigadier-General A Scherbakov and under the operational control of Colonel P Tsybin of the 3rd Air Force to organize resupply flights deep into enemy territory. One flight landed members of the Lithuanian Supreme Soviet over 600 miles behind German lines and between 6 and 20 March 1943, the Kalinin Front was supplied with 50 tonnes of ammunition, 150 demolition specialists, 106 key personnel, five printing presses and sixteen radio stations for the production of propaganda in ninety-six combat missions with transport aircraft towing thirty-five A-7s and thirty G-11s. The pilots were later recovered by light aircraft and returned to Staraja Toropa. The following month, a request from partisans in the Polotsk-Lepel area led to a glider force being assembled at the base and nearby airfields of Lushi and Andreapol but bad weather prevented the operation taking place until the night of 2 May. Six gliders, guided by just four signal fires, landed at Begoml that night and were immediately attacked by waiting German fighters, although their cargoes were unloaded safely later. The next day, a fierce German attack closed the landing site. Another 600 by 200 m area was found and over the next three weeks a train of gliders brought in supplies. When a German anti-partisan operation reached the area around the village of Beresyouka later in the year, it found the remains of 100 burnt-out Russian gliders. It was during this operation that test pilot Sergey Anokhin completed the only known Russian glider extraction when he evacuated two wounded partisan commanders by being towed behind an SB bomber piloted by Yuriy Zhelutov on a 10 m rope and using a frozen lake as a runway.

The Dnieper operation and a second series of partisan resupply missions lasting until April 1944 were the last uses of gliders by the Russians. The pilots were awarded the title of 'Guards Regiment' and reassigned to fighter units until the end of the war but Russia would then maintain a glider force for another twenty years – the first and last country in the world to use them.

Chapter Nine

Into the cauldron: German operations on the Eastern Front

On 20 March 1941, Sumner Welles, the American Undersecretary of State, informed the Soviet ambassador in Washington of an impending attack on Russia by Germany based on information supplied by the American commercial attaché in Berlin. A month later, Winston Churchill, alerted by intercepts of German messages, sent a personal note to Stalin that reached him on 19 April. US legations in Bucharest and Stockholm reported during the first week of June that an invasion of Russia was coming within a fortnight, information that American Ambassador Laurence Steinhardt passed on to the Soviet foreign minister, Molotov. On 16 June, the German embassy evacuated all non-essential personnel as the Luftwaffe continued to make over 300 reconnaissance flights over Russian territory. Despite this, Stalin's government chose to ignore the warnings and continued to supply its former ally with raw materials right up until 0315hrs on 22 June 1941, when German artillery and air strikes began to hit Russian airfields at the start of Operation Barbarossa. From the outset, it seemed, Moscow failed completely to grasp the dimensions of the catastrophe that was unfolding.

After the initial shock of invasion, the Russians regrouped and began a counteroffensive that would drag on for years. Over the coming months, like all German forces, glider groups frequently fragmented and reformed, making a continuous narrative of German glider operations in Russia difficult to achieve and what follows is merely an overview of the work of dozens of such units in often *ad hoc* formations created for short operations and then reabsorbed into larger squadrons and groups.

Throughout June, three German armies rapidly pushed eastward into Russia. Army Group North punched through the gap between two Soviet armies with the 600 tanks of 4th Panzer Army sweeping towards the Rivers Neman and Dvina – the two largest obstacles en route to Leningrad. By the end of the first day, German tanks crossed the River Neman and had penetrated another fifty miles. A counterattack by 300 Soviet tanks near Rasienai held them up for four days but by the end of the month the Germans had reached the Dvina and were poised to take Leningrad.

Meanwhile, Army Group Centre was headed towards Smolensk and Moscow

and, by the end of June, the 2nd and 3rd Panzer Armies had met up after advancing 200 miles into Soviet territory and were now about one-third of the way to Moscow. A vast pincer movement had encircled thirty-two infantry and eight tank divisions in a pocket between Minsk and the Polish border. It was a costly clearing up operation for the Germans but by the end 290,000 Soviet prisoners had been taken with 1,500 guns and 2,500 tanks destroyed, but around another 250,000 Soviet troops managed to escape.

Army Group South, pushing towards Kiev, found their task more difficult. Soviet commanders had quickly reacted to the German attack and mounted a determined resistance by three Soviet armies. On 26 June, as 1st Panzer Army attempted to capture Brody, a massive counterattack by five Soviet mechanized corps with over 1,000 tanks pounced. The four-day-long battle was among the fiercest of the invasion with heavy losses on both sides, but the Germans eventually succeeded in pushing the Russians back, costing the latter their last tank reserves in the south. By the end of the first week, all three German army groups had won major battles and were well on the way to success.

Army Group North, moving into position around Leningrad, now turned its attention towards consolidating the ground it had taken and mopping up resistance. High on its list of priorities was a group of islands in the Gulf of Finland where Russian guns threatened the German supply lines.

The capture of Ösel Island: 24 September 1941

During the advance, the Russian garrisons of the Baltic islands of Vormsi, Muhu, Saaremaa (known to the Germans as Ösel) and Hiiu had been by-passed and left alone. The islands had long been a strategic position, fought over in 1790 during the Russo-Finnish war and again in October 1917 when the Imperial German Army launched Operation Albion – an amphibious assault by the Nordkorps on the seaward side which ultimately ended up capturing 20,000 Russian POWs and established a base for the capture of Tallinn. In 1941, the islands were estimated by German intelligence to be garrisoned by approximately 15,000 Russians and held ten coastal and sixteen mobile batteries of artillery under the overall command of Major-General A B Elisseyev. The batteries threatened the air and sea approaches to the ports of Riga and Pernau but also provided an airfield from which several bomber raids on Berlin had been launched between 7 August and 4 September. Saaremaa is approximately 1000 square miles of flat, sandy and sparsely populated terrain connected to the smaller island of Muhu by a two and a half mile causeway. It held coastal batteries and the 3rd Independent Rifle Brigade commanded by Berzarin, with support from the 79th Rifle Regiment on Muhu. Elsewhere, the second largest island at around half the size of Saaremaa, Hiiumaa was held by two Rifle Battalions and another two companies on Vormsi to the north-east. In all, the Russians could muster some 24,000 defenders.

Operation Beowulf, the German assault on the islands, was essentially a reverse of the 1917 attack, with 18th Army capturing Tallinn first and then using the Estonian mainland to mount their attack against Saaremaa. The operation was held up by heavy fighting in the 18th Army area and the Kriegsmarine's difficulty in assembling amphibious craft but by September, with the islands by and large cut off from the mainland for ten weeks, an attack force was ready.

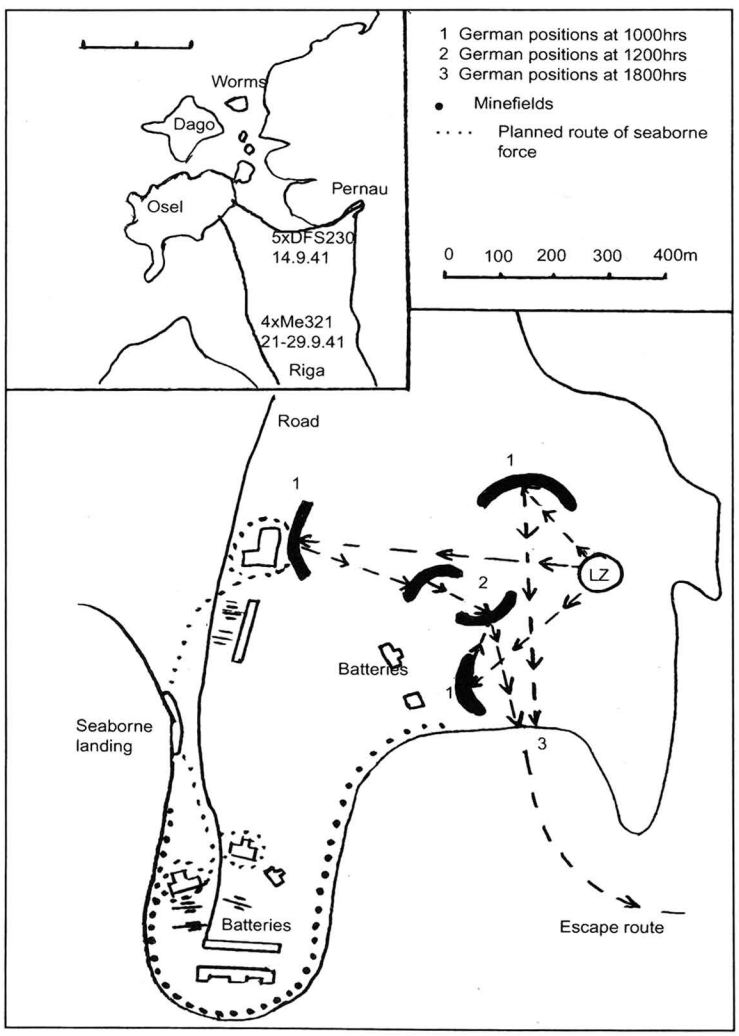
On 10 September, Vormsi Island, closest to the mainland, fell quickly to an attack by elements of the 217th Infantry Division. In an attempt to make Elisseyev think the Germans were simply repeating the plan for the 1917 seaborne attack, Operation Sudwind was launched on the 13th when the Cruisers *Leipzig*, *Koln* and *Emden*, together with a force of minesweepers and torpedo boats, feinted to the south and west of Saaremaa. At the same time, their Finnish allies undertook Operation Nordwind off the north shore of Hiiumaa island with two Monitors, two armed Icebreakers and a variety of smaller vessels. During this phase of the operation, the Finnish flagship, the ten inch gun monitor *Ilmarinen* struck two mines and sank in minutes with a loss of 271 crewmen but the plan had worked and had diverted attention away to the coasts when the real attack came early next morning.

On 5 July, ten DFS 230 gliders of 6./LLG 1 (6 Squadron, Air Landing Group 1) had left their base at Halberstadt and made their way to a variety of airfields before arriving at Pernau as 'Sudwind' began. Here the glider commander, Leutnant Flucke, met with Hauptman Benesch of the 16th Brandenburger Regiment to discuss an operation against the coastal guns of Fort Kübassaare on Saaremaa. Five gliders carrying pioneers would land near the coast and eliminate the guns there whilst another eighty pioneers with heavy weapons would land from a force of eighteen fishing boats and attack the coastal batteries. Other positions identified from aerial photos would be attacked by Me110 'Destroyers' from II/ZG26. As the Brandenburgers attacked, the 61st Infantry Division under Haenicke and comprising the 151st, 162nd and 176th Infantry Regiments and Auflarungs Abteilung 161 were to launch an amphibious assault on Muhu island at 0400hrs on 24 July and would link up with the airborne later in the day.

The five gliders, under the command of Unteroffizier Haag, with pilots Thielmann, Rösler, Kommander and Hertwig, lifted off on schedule from Pernau for a forty-five-minute flight through low cloud and poor visibility. Over the target, the gliders released at 400 m, each following their leader to a smooth landing without any resistance from the Russians but coming to rest around 800 m from where they expected to be. Rösler asked Haag why and was told that Benesch had told him to land there but Haag didn't know why. On the way in, no one had seen the boats bringing the rest of the Brandenburgers and now they were further from their objective than expected. Rösler realized things were not going to plan. In fact, heavy seas were hampering efforts on all the islands. The 151st Infantry Regiment took 180 boats and AA 161 another 90 to cross the six-mile sound but as the 151st IR landed at Kuivastu the first wave in four six-man

boats missed their intended beach by a mile as a result of strong winds and currents and the second wave got so disorientated that they circled back to the Estonian mainland. The pioneers headed for Saaremaa had been forced back by rough seas and strong currents.

After the initial surprise, the Russians reacted. As the group set out for its objective it came under heavy fire and was soon under fire from three sides as trucks brought Russian reinforcements to the bunkers around the battery. The Germans began to withdraw towards the coast, the only route left to them, and within minutes the thirty men still capable of fighting had formed a 'hedgehog' defence as the Russians pushed to within 400 m of the landing site. For the rest of the day the force remained pinned down among reeds along the coast. At around 1600hrs, a message reached them from a circling Me110 to 'hang on, the boats will attempt a landing'. The glider pilots had rescued the life rafts from their aircraft and now got ready to use them to reach the expected boats but none appeared. Air support by Ju88s and naval gunfire support held off Russian attacks until, at around 1800hrs, three Ju52s appeared and dropped nine rubber dinghies, each designed to carry four men. Four of these, together with all the



Osel Island: sketch map of the glider force assault and movements.

paddles, dropped into Russian hands but five were recovered and the men were told to use the dinghies and head for Muhu where, at around 2300hrs, they would be picked up by three fishing boats.

At 1900hrs, with darkness falling, the last Me110 left. Hauptman Benesch and some of his pioneers scouted the beach to find an area where they would be able to put to sea. Using the inflated dinghies as stretchers for the wounded, the survivors dragged themselves 300 m to the beach under sporadic rifle and cannon fire as they moved. All the boats were damaged and overloaded and the unwounded men in each boat were forced to take turns to swim alongside in the freezing water as others baled. Lacking paddles, the men had to use their hands to row and a spade as a rudder. The strong currents that had hampered the sea landing now pushed the boats back towards shore and it was only with great effort that the group reached open sea after jettisoning everything possible. At around 0700hrs, a ship was spotted and a white flare fired. Within an hour, three cutters arrived to pick the men of four boats up but the fifth had drifted back to shore and the nine men in it were captured. They were dragged in front of the Soviet Commissar who ordered them to be shot. Two, though, were not hit, managed to escape and were picked up later by seaplane. During the battle, Haag was shot through the neck and eleven of the pioneers were killed, with another nine wounded. Muhu fell the following day and the 151st IR attacked across the causeway to Saaremaa against a now disorganised resistance. A beachead was finally secured on the island by 1100 on the 16th but it was not until the 21st that the town of Kuresaare fell, by which time Me321 Gigant gliders of GS1 (Special Squadron 1) under the command of Oberleutnant Melzer had undertaken their first combat mission, flying in 20,000 litres of fuel and four tonnes of ammunition to support the ongoing battle. More followed the next day and four of the giant gliders would take part in the operation over the next week.

The following day the Soviets retreated into the Sorve Peninsula, a one and a quarter mile wide isthmus to the south and began a last ditch defence with around 15,000 men. The assault on the isthmus started on the 23rd and fighting continued for four days. On the 27th, two Me110 tugs of GS1 were hit by Russian flak whilst towing the lumbering Gigant but that evening the 151st IR, with heavy Luftwaffe close air support from I/KG77 and II/ZG26 and naval gunfire from Cruisers in Operation West Storm, began a final push. The Sorve peninsula finally fell on 5 October with the capture of 5,000 POWs although another 1,500 Russians managed to escape by sea to the island of Hiiumaa. A week later, after another naval feint (Operation East Prussia) the 176th IR, supported by fire from the cruiser *Koln*, landed on the east side of Hiiumaa island at 0500hrs at the start of Operation Siegfried. That afternoon, AA161 and the 151st IR landed on the southern side of the island and Hiiumaa fell after another nine days. Only 570 of the original 24,000 Russian defenders of the Baltic Islands remained. By the end, the operations against the Baltic islands had captured around 15,000 POWs and 200 guns at a cost to the Germans of 2,850 casualties.

At the end of June there were very few Soviet soldiers between the Germans and Moscow and the entire Soviet army in European Russia was down to 800,000 men and 770 tanks. By the autumn, though, the situation had changed radically. On 5 October, Stalin received a radio message from his spy Richard Sorge in Tokyo that the Japanese would go to war with the United States in the next few months. Realizing that the huge army currently based in eastern Siberia and Outer Mongolia to deter Japan was no longer needed, Stalin ordered twelve divisions with around 250,000 men, 1,700 tanks and 1,500 aircraft to come to the defence of Moscow. Two days later, the first snows began to fall. It melted quickly, but was followed by heavy rains. 'The roads rapidly became nothing but canals of bottomless mud,' Guderian later wrote, 'along which our vehicles could only advance at a snail's pace and with great wear to the engines.'

Then, on 2 November, the weather began to improve. A light frost permitted the troops to become mobile again as artillery pieces were dragged out of the mud and trucks could roll once more. So confident of quick victory was Hitler that he had not prepared for even the possibility of winter warfare in the Soviet Union. The entire German plan assumed that within five weeks the German troops would have full control of the country once the Red Army collapsed. Logistical support would then only be needed to meet the fuel requirements of the few mobile units required to occupy the defeated state. Despite this confidence, the German army suffered more than 734,000 casualties (about 23 per cent of its average strength of 3,200,000 troops) during the first five months of the invasion, and on 27 November 1941, General Eduard Wagner, the Quartermaster General of the German Army, reported that 'We are at the end of our resources in both personnel and material. We are about to be confronted with the dangers of deep winter.' German commanders called for a final great exertion to reach Moscow in an offensive that would go down in the annals of the German army as the 'die Flucht nach vorn' (the flight to the front) – a desperate attempt to get the troops into the shelter of Moscow before the onset of winter.

The three German armies had entered Russia with over 3,500 tanks but only around one-fifth of the force was motorized. The 600,000 large western European horses the Germans relied on for supply and artillery movement did not cope well with the freezing weather, unlike the small ponies used by the Red Army which were much better adapted to the climate and could even scrape the icy ground with their hooves to dig up the weeds beneath. German troops had the equipment for winter conditions, but the severely overstrained transport network failed to reach the men who needed it most. Precious fuel that was difficult to resupply went to keeping fires burning as soldiers had to pack newspapers into their jackets to stay warm in temperatures falling to record levels of around -30°C (-22°F). Then the Russians attacked.

The newly arrived troops from Siberia, supported by wide-tracked T-34 tanks, had no difficulty in coping with the mud and snow and their attacks began to penetrate deep into German lines. The counterattack hit the worn-out

German divisions at their moment of greatest weakest and everywhere the Germans began to fall back. Writing of the disaster of Napoleon's 1812 retreat from Moscow, Swiss military analyst Antoine-Henri Jomini commented that: 'Russia is a country which is easy to get into, but very difficult to get out of.' Mindful of the fate of Napoleon's troops, Hitler issued what became known as the 'stand or die' order, demanding that German forces fight 'breakwater' actions to stem the tide of Soviet counterattacks. It prevented a rout, but resulted in heavy casualties from battle and cold and, as winter set in, the already over-stretched supply network virtually collapsed. Vehicles and horses struggled to make progress in deep mud and the Luftwaffe assumed more and more of the burden. The Me321 Gigant gliders, originally designed to support the invasion of Britain, were now redeployed to the Russian front with each army group being allocated a squadron of six of the massive aircraft; Sonderstaffel GS1 under Oberleutnant Melzer had been sent with its Me110 towplanes to Riga to support Army Group North with a replacement unit (Sonderstaffel GS2) under Oberleutnant Baumann moving to join GS1 at Merseburg in January 1942. Army Group Centre was supported by Oberleutnant Pohl's Sonderstaffel GS4 operating out of Winniza and Army Group South by Sonderstaffel GS22 at Orscha-Sud under the command of Oberleutnant Schäfer. Along with the Gigants, the Gotha Go242 glider had entered service in 1941. The GO, as it was known, could carry twenty-three equipped soldiers and its size allowed it to be converted into a mobile workshop to maintain aircraft at rudimentary airstrips or into a field medical unit. DFS 230 gliders were also used to transport ground crews and every Stuka squadron was allocated a glider (which could be towed by the Ju87). Flying supplies in and wounded out, gliders became a routine part of the aerial resupply operation but as the Russians attacked in a series of en-circlement movements, they found a more demanding role. The glider war in Russia would become a series of heroic but desperate flights by glider pilots into siege after siege, each more dangerous than the last and all based on the early success achieved by the Luftwaffe at the small town of Suchinitschi.

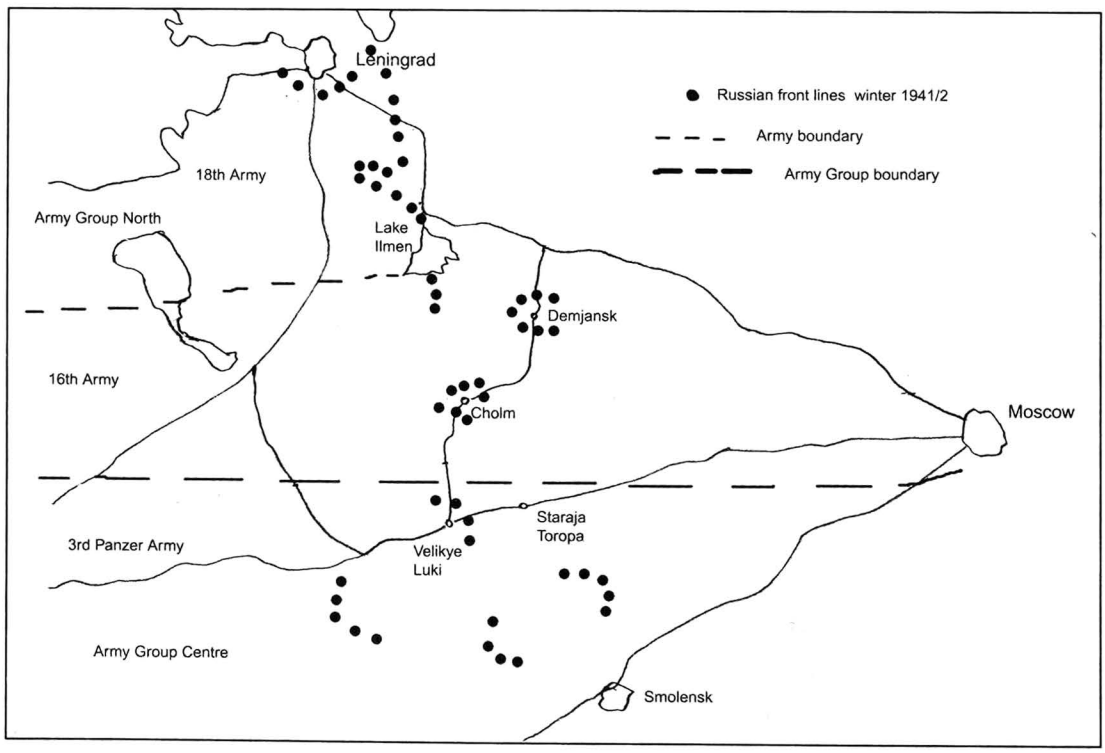
The Suchinitschi resupply flights: December 1941–January 1942

On 29 December 1941, part of Army Group Centre's 216th Infantry Division found themselves outflanked and withdrew into a defensive perimeter around the village of Suchinitschi, about 230 kilometres south-east of Smolensk where five thousand soldiers with another thousand wounded were dug in but trapped in an area seven kilometres long by three wide. VIII Fliegerkorps command ordered a resupply of desperately needed ammunition and so on 16 January Oberfeldwebel Held set out in a Go242 but was forced back when bad weather prevented the tow finding the landing zone. A second, more successful attempt was made by Unteroffizier Ulmer carrying 120 rounds of 10.5 cm heavy artillery

shells, small arms and ammunition and a powerful radioset. Green flares fired by the infantry guided him safely onto the landing zone and, half an hour later, another GO arrived. Two days later, two more GOs were attacked by Russian fighters as they approached but were saved by their Me109 escorts. Over the next few days, five gliders would land in the encirclement whilst a sixth landed in Russian lines when its cable broke (although the crew managed to evade capture and reach safety). Panzer forces broke through the siege on 24 January and the glider crews returned to their Smolensk base, warmly congratulated by the officers of the division, as were the crew of the sole Ju52 that had managed to land inside the perimeter to evacuate the wounded. The operation had been a complete success but, even as Suchinitschi was being relieved, the Russian 3rd Shock and 11th Armies had forced a breach of German lines on the Waldai plateau and reached the Lovat River via Ostachkov. The Russian counteroffensive was well under way and the resupply work was not over. More encirclements were to come.

The Demjansk 'Kessel' (Cauldron) resupply, 18 February–19 May 1942

The Germans had not expected the Red Army to be capable of launching a wide offensive and the sudden attack through a previously quiet sector took them by surprise. General Kurochkin, commanding the Soviet North-Western Front,



Eastern Front 1941/2: main areas of glider operations.

had been tasked with breaking out of his position south of Lake Ilmen and advancing directly west through Staraya Russa to split the German 18th and 16th Armies in support of the Volkhov and Leningrad Fronts in order to break the siege of Leningrad. This was to be followed by a thrust by the 33rd, 3rd and 4th Shock Armies in a south-westerly direction towards Vitebsk with the aim of encircling the German Army Group Centre. As they pushed south, the Russians exploited every opportunity, overrunning the forward two regiments of the German 123rd Infantry Division, which was covering a line of thirty kilometres and capturing the vital supply depot at Toropets. Every available German reserve was rushed to the area by train and aircraft to create strongpoints in an attempt to break up the Soviet attack. The 81st Infantry Division, a reserve formation, was brought forward by rail at the end of December and disembarked at Toropets and Andreapol. The 189th Infantry Regiment under Colonel Hohmeyer, along with the 2nd Battalion of Artillery Regiment 181 and the 3rd Company of the Engineer Battalion 181 then moved up to Okhvat where, on 14 January, it was encircled and completely destroyed so quickly that their presence was not even added to German situation maps. Over a thousand bodies were later found in the forest around Okhvat and just forty survivors from the artillery battalion made it back to the German lines.

On 8 February the Soviet operation encircled the Germans at Demjansk, trapping around 100,000 men of the 2nd and 10th Army Corps. The garrison, under General der Infanterie Walter Graf von Brockdorff-Ahlefeldt, commander of the 2nd Army Corps, prepared defences and requested urgent resupply to enable them to hold off the repeated Russian attacks. Assured by the Luftwaffe that the pocket could indeed be supplied with its daily requirement of 270 tons by air, Hitler ordered that the surrounded divisions hold their positions until relieved and the task was assigned to the First Air Force with three groups of Junkers Ju52 transport planes and their DFS 230 and Go242 cargo gliders. The chief supply officer of the air force formed a special air transport staff under Colonel Fritz Morzik which, in liaison with the army, carried out the supply operations in accordance with requests received from the encircled units.[1]

The Demjansk *Kessel* (literally meaning 'cauldron') was a pocket containing two landing fields capable of handling Ju52 flights and a number of drops were made by parachute and supported by special bomber squadrons dropping additional supply canisters. The weather remained clear and the resupply operations were generally very successful but used up most of the available Luftwaffe transport and much of their bomber capability. On their return flights, the carrying capacity of the aircraft was taxed to the limit with heavy loads of sick and wounded, official and soldiers' mail, and sometimes even with equipment in need of repair. Few planes were lost to enemy action but the rate of attrition from wear and tear was very high, requiring constant replacement of the transport planes and the increased demands by other sectors of the front along with the low rate of production meant that it was even necessary at times to use training

aircraft to fill the gaps that developed. Between 18 February and 19 May, when the siege was finally lifted, the Germans transported an average of 302 tons of supplies per day, flew some 30,500 men into the pocket and 35,400 wounded men out in over 32,427 missions at a cost of 265 aircraft and 385 Luftwaffe crewmen, including two group commanders. It was a stunning achievement but, as Morzik later commented, it effectively set the Luftwaffe up to fail by raising expectations about the feasibility of aerial resupply in every situation. Round-the-clock flights by bombers dropping their containers at the lowest possible altitudes were costly in aircraft losses and put the personnel to a severe test, but worse, during February alone, I Air Corps had flown 1,725 bomber sorties in direct support of ground operations and 800 supply missions for the Army. By March, the supply missions had taken up 1,104 bomber flights, diverting them from their primary offensive tasks to join the improvised supply operation. After the Demyansk pocket was relieved, top-level army experts concluded that the air supply operations had been of decisive importance in enabling the encircled forces to hold out. Now, in the coming months, they would be expected to repeat their success on ever greater scales in very different circumstances.

The Cholm Kessel, 21 January–5 May 1942

As the Russians encircled Demjansk, other units pushed another hundred kilometres to the south where the German 39th Corps was being forced back to the south-west of Cholm (or Kholm), a small town in a swampy area to the south of Lake Ilmen. Built where the Rivers Lovat and Kunya met and a crossroads for the major north–south and east–west roads, Cholm was a major transport hub at the boundary between Army Groups North and Centre and provided a jumping off point for the attacks on both Moscow and Leningrad. It was also a key point in the land bridge between Demjansk and the small city of Velikye Luki, located further down the Lovat River. Velikye Luki had a prewar population of around 30,000 and was one of the most westernized of Russian cities – the point where the wide West European railway gauge was changed to that of the narrower East European network. Control of Velikye Luki meant control of the supply routes east and west.

Russian ski units cut the road linking Cholm with Velikye Luki on 21 January, forcing units of 39th Corps to the west back into the town where, with elements of the 123rd and 218th infantry Divisions, Reconnaissance Battalion 218, a Luftwaffe field regiment and the 65th Reserve Police Battalion, around 5,500 men reformed as 'Kampfgruppe Scherer' under the command of Generalmajor Theodor Scherer and prepared to hold out against a massing Russian assault.

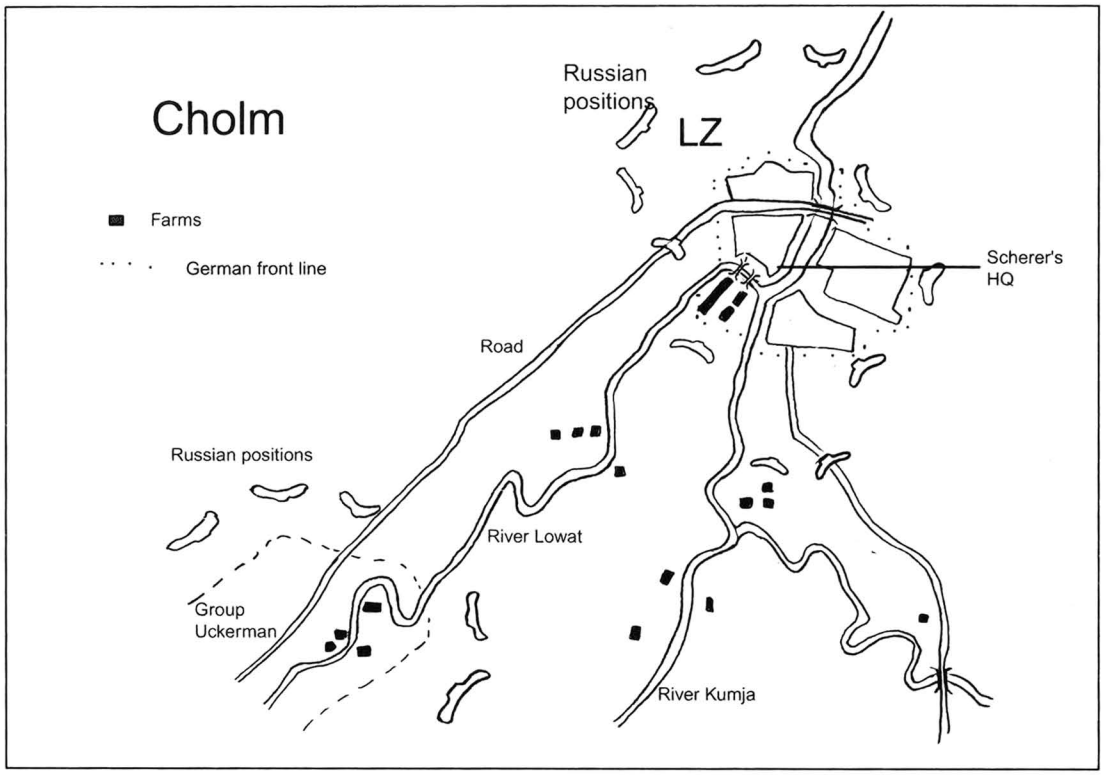
The first serious Russian attacks against Scherer's men began two days later when, from all four sides of the perimeter, infantry supported by tanks probed for a weak point to exploit. Fortunately for the Germans, the ground conditions prevented the Russians using heavy armour and although the attacks managed

to gain some ground in the north-western part of the town, they were held everywhere else. During the day, 200 mountain troops from the 10th Machine Gun Battalion joined the Kampfgruppe after fighting through the Russian lines, providing men for a counterattack that managed to recapture most of the lost ground.

Heavy Russian artillery bombardments quickly reduced most of the buildings within Cholm to rubble and there was little shelter for the defenders against temperatures that dropped to almost -40°C at times. Trenches had to be blown out of the ground using explosives and most movement could only be made using Russian Panje horses and sleds. Frostbite became commonplace and, more seriously, diseases such as typhus and dysentery began to appear in the unsanitary conditions. The small field hospital was forced to move into bunkers after its first base burnt down during an artillery strike.

Outside support came from the artillery of 'Gruppe Uckermann', sited around eight kilometres west of the town around the villages of Tarakonovo and Dubrowo and directed by a radio link to artillery observers in the city church who were able to call down 1,000 rounds per day in support of the forces inside the pocket. Air support was also available using a kilometre-wide meadow to the west of Cholm as a landing strip which enabled Ju52s to evacuate some 700 wounded men in the early stages of the encirclement. Soon, however, pressure on the Germans forced them back and the landing strip became part of no man's land. Even then, Ju52s risked landing during quiet periods, drawing the inevitable artillery, mortar and small arms fire but managing to deliver vital supplies. In the middle of February, one attempted landing alone cost the loss of five aircraft and, on 13 February, Luftflotte 1 signalled the General Staff that 'artillery and mortar fire on the landing strip resulting in heavy losses in transport aircraft was a compelling block to transport landings in Cholm. We ask [Luftwaffe Staff Headquarters] to cause LS [lastensegler = glider] use to be stepped up.'[2] Immediately, the commander of Luftwaffe Transport Command in the area, Colonel Morzik, ordered gliders to be moved to Pleskau under the command of GO-Kommando/Luftflotte 1 (GO Unit, 1st Air Fleet). The first Go242 glider, flown by pilots Seidel and Jauch, had landed in Cholm on 16 February and was followed by more at a rate of two or three gliders a day flying in weapons, ammunition, medical equipment and other supplies.

On 23 February, the Russians launched their heaviest attack of the siege with an entire infantry division supported by tanks committed to the assault. With just a few 37 mm Pak and one 50 mm Pak anti-tank gun, the Germans struggled to fight off the armour, firing at almost point-blank range into the well-armoured Russian tanks in order to have any effect. As the first attack broke down, the Russians regrouped and pressed home a second until eventually they fought their way into the eastern outskirts of the town itself. Over the next two days eighteen more attempts to break the perimeter were held back with the support of Luftwaffe ground attack aircraft and General Uckermann's artillery.



Cholm: sketch map of the area and Landing Zones.

The next day, Luftwaffe Ju52s again landed to bring in reinforcements and evacuate the wounded but Russian pressure on the landing strip was now so intense that aircraft losses reached 30 per cent of those committed. Further flights were suspended by the Luftwaffe General Staff. The small size of the pocket meant that parachute drops risked losing supplies to the Russians so supply canisters were being dropped by special bomber groups equipped with He111s and even, where the lines were particularly close, by Ju87 Stukas. For heavy supplies, though, the only option was by glider. The suspension of flights by Ju52 meant that, from then on, glider flights into Cholm would be a one-way trip for their crews.

Between 9 and 12 March, a complete infantry company was flown into the pocket and one of the passengers later recalled his journey. Early on the morning of 21 April 1942, twenty men were taken to a glider on the airfield where a Luftwaffe officer assured them that they could expect a nice quiet trip and that everything was under control. They sat facing each other on benches along the sides of the aircraft with ammunition piled between them and nervous banter gave way to silence as they prepared for their first flight. A jolt was felt through the glider and slowly it began to move. The engine noise of the JU tug rose and through the windows they could see the earth scurrying past. The stern of the glider lifted and then, with a jump, it began rising rapidly. Another jerk as the wheels were jettisoned and it climbed to around 500 m. As the tension

eased, there was laughter but the passengers knew they were in business. The glider

> hung quietly behind the tugplane and I could make out a second glider and there was a fighter I was told was an Me109 but I couldn't see it, only the light blue of the sky. The pilot shouted something unintelligible and pointed with his thumb below us. We dropped quickly, like an elevator in a store as the Russians opened up with machine gun and rifle fire. I could feel the excitement rising but there was nothing to be seen out of the window and there was much to do . . . Through the cockpit we could see the JU banking away to the left, then the pilot called 'We're landing!'. We hit the ground and were jolted around as we landed with a crash and the aircraft splintered. I was sitting tight and when we stopped jumped out and lay stunned in a small bunker. It was a comparatively good arrival, no-one was killed.[3]

On 16 March, GO pilot Werner Sinhart flew from Riga to Pleskau where his glider was loaded with 1,000 kg of Teller mines, five mortars, two hundredweight of chocolate and some woolsacks – 'and then eighteen men climbed in'. All flights into Cholm were now taking place in the early morning or at dusk to reduce the risks of effective anti-aircraft fire and Sinhart left at 1645hrs. After flying for eighty minutes, the glider skimmed over the outlying German positions at a height of just 20 m. The glider quickly put down and Sinhart watched the tug disappear. In the half-darkness, he saw a horse sleigh coming towards him. Anxiously he wondered whether they were Russians and was enormously relieved to find them to be Germans – his precious cargo was safe. At that point, he had no idea that he would be stuck there for the next 'fifty-one often troubled and sorrowful days' until the encirclement was broken. Two weeks later, 29 March was a bad day for Sinhart. His friend Gunther Langmann was landing close by when he hit a telegraph pole at about two metres off the ground. The glider rolled left and broke its back, killing six pioneers but Langmann survived and was rescued, seriously injured, from the wreckage.

On 1 May, another large Russian attack was launched against the pocket, which by now had shrunk to less than 1,000 square metres and the defenders were almost overrun as Russian forces came within a hundred metres of the eastern bank of the Lovat River. For Sinhart and his fellow glider pilots, now sheltering as best they could and fighting alongside the infantry, it was a desperate time. Uninterrupted fire from artillery and Stalin Organs (multi-barrelled rocket launchers) kept them pinned down between 1 and 3 May. Glider pilot Unteroffizier Langguth was working in front of his bunker when he was hit in the abdomen and knee. He died very quickly. Max Pfeiffer was next door and was hit by an incendiary shell, and a house facing Sinhart where forty-five wounded men were sheltering was hit and burned down, killing everyone inside.

The outlook for the wounded was bleak. By the end of April, there were around 1,500 injured men but no means of evacuating them and it was only reinforcement by a team of volunteer medics that prevented a total collapse of the medical system.

Then, on the morning of 5 May, lead elements Grenadier Regiment 411, commanded by Oberstleutnant Tromm and supported by Sturmgeschutze assault guns and Luftwaffe ground attack aircraft, broke the encirclement. Rapidly reinforced, the garrison was replaced and taken out of the line after a 105-day siege but it would be another month before the front was stabilized in that area. Only 1,200 were left of the original 5,500 men trapped in Cholm back in January. In recognition of his command of the defence of Cholm, General Scherer was awarded the Knight's Cross. On 1 July 1942, Hitler ordered the award of a special decoration consisting of a shield emblazoned with a eagle with outstretched wings holding in its talons an Iron Cross with a swastika and the words 'CHOLM' and '1942' below it to 'all who were involved in the defence of the city of Cholm'. Sinhart and the surviving glider crews were among the proud recipients.

Across the Eastern Front, the power of the Russian winter offensive had caused panic among the German army and, as a result, a number of senior German commanders were dismissed. Field Marshal von Brauchitsch, Commander in Chief of the Army, was formally removed by Hitler on 19 December 1941, who then assumed the position himself and ruthlessly enforced his order to stand and fight. Slowly, as the German army recovered during the spring of 1942, the front stabilized and it could be argued that Hitler had saved the army from total collapse during those crucial months. Unfortunately for the Germans, the success of his inflexible approach and of the air resupply of the trapped 'cauldrons' clouded his judgement – setting the precedent for all future crises.

Among the commands replaced by Hitler was that of the 6th Army, part of Army Group South. General Paulus, a staff officer at German Army High Command was recommended for the post by Field Marshal von Reichenau, the former commander of 6th Army and newly appointed commander of Army Group South and duly given the command on 6 January 1942. Paulus had no experience at this level, had never even commanded a division or corps and even Hitler expressed reservations about the appointment, but Paulus had a reputation as an exceptional operations officer and had been responsible for evaluating the options for Operation Barbarossa. Whatever his paper ability, as a commanding officer he lacked initiative and could be indecisive – character traits that would bring serious repercussions on his army as they became embroiled in the war's bloodiest battles.

The Stalingrad airlift

By late spring, 1942, the Germans were once again ready to begin their offensive but by now, plans to attack Moscow directly had been shelved. Army Group Centre had suffered too many losses to be able to take on the task just yet. German military doctrine insisted on attacking where least expected so that rapid gains could be made and an attack on Moscow was seen as too predictable by many, including Hitler. Aware that the United States had entered the war, Hitler wanted to end the fighting on the Eastern Front or at least minimize it before America became involved in the war in Europe. So, acting against the advice of his generals, Hitler suddenly shifted the main German effort south. Army Group South's 6th and 17th Armies and the 1st and 4th Panzer Armies were ordered to sprint forward through the southern Russian steppes into the Caucasus and capture the vital Soviet oilfields in a summer offensive codenamed *Fall Blau* (Case Blue). In 1941, Army Group South had conquered the Ukraine and was well positioned for the offensive. Hitler now intervened, ordering Army Group South to be split into two separate forces. Army Group South (A), under the command of Paul Ludwig Ewald von Kleist, was to continue advancing south towards the Caucasus as originally planned, with the 17th Army and 1st Panzer Army. Meanwhile, Army Group South (B), under General Maximilian von Weichs would use Friedrich Paulus's 6th Army and Hermann Hoth's 4th Panzer Army to move east towards the Volga and the city of Stalingrad.

After delays to allow units required for the offensive to disengage from besieging Sebastopol in the Crimea, the attack finally got under way on 28 June. It started well, with Soviet forces offering little resistance and the vast empty steppes proving ideal tank country. Soon, disordered Russian troops were streaming eastward as attempts to form defensive lines were quickly outflanked and destroyed in two major pockets, the first north-east of Kharkov on 2 July and a second around Millerovo and Rostov Oblast a week later. Three days later, the city of Voronezh fell to the Hungarian 2nd Army and the German 4th Panzer Division.

This initial advance by 6th Army was so successful that Hitler again intervened, ordering the 4th Panzer Division south to join Army Group South (A). In an area of few roads, thousands of vehicles of both the 4th and 6th Army ground to a halt in a massive traffic jam that would take up to a week to clear. With the advance now slowed, Hitler again changed his mind and reassigned the 4th Panzer Army back to the attack on Stalingrad. By late July the Germans had pushed the Soviets across the Don River and, together with their Italian, Hungarian and Romanian allies, had established a line only a few dozen kilometres from the city. Originally, Stalingrad did not feature significantly in the German operational plans. The intention had been simply to reduce it by artillery and air bombardment to destroy its armaments production and the harbour on the Volga. The capture of the city would now serve a useful military purpose in securing the left flank of the German armies as they advanced into

the Caucasus but the fact that the city bore Joseph Stalin's name would also make its fall a potentially fatal propaganda coup against the Russians. When reports indicated that the attacks had progressed better than expected, the plans were yet again changed and the city became a focal point for the German effort.

Stalin obviously also had his own interest in defending the city that bore his name, having himself played a prominent role in the Soviet defence of Tsaritsyn (as Stalingrad was then known) during the Russian Civil War. The fact was that, with panzers sweeping across huge tracts of Russia, Stalin was fast running out of time and resources and he knew that luring the Germans into a drawn-out battle in a large urban area dominated by short-range small arms fire and artillery would disadvantage German forces geared up to highly mobile operations. By the end, though, over and above the actual strategic significance of the battle, for both Hitler and Stalin, Stalingrad would come to be about prestige. The Soviet command transferred aircraft from the entire country to the Stalingrad region and moved their strategic reserves from the Moscow area to the lower Volga. On 27 July, Stalin's Order No. 227 decreed that anyone who retreated or otherwise left their positions without orders could be summarily shot. Every able Soviet citizen in the city was told to pick up a rifle and defend Stalingrad or die, with the slogan 'not one step back!' 'Workers militias' made up of those not directly involved in war production became frontline troops, with tanks produced in local factories driven directly from the factory floor to the frontline, often without paint or even gunsights, by volunteer crews of factory workers.

For the next few months, German and Russian troops fought a bitter hand-to-hand battle for control of the ruins of the city. By the end of August, as Army Group South (B) finally reached the Volga north of Stalingrad, the life expectancy of newly arrived Russian reinforcements to the city had dropped to less than twenty-four hours. The strain on both military commanders was immense and Paulus developed an uncontrollable tic in his eye whilst Chuikov experienced an outbreak of eczema so severe that his hands were bandaged completely. Neither side appeared to be making any significant gains until, in the autumn, Soviet generals Aleksandr Vasilyevskiy and Georgy Zhukov concentrated massive Soviet forces in the steppes to the north and south of the city. The German northern flank, defended by Italian, Hungarian and Romanian units that suffered from inferior equipment and low morale, was particularly vulnerable and the plan was to keep the Germans pinned down then strike the overstretched and weakly defended German flanks, thus surrounding the Germans inside Stalingrad. Operation 'Uranus' would be launched in conjunction with Operation Mars, against Army Group Centre and was similar to that used by Zhukov three years earlier at Khalkin Gol when a double envelopment manoeuvre had destroyed the Japanese 23rd Division. The offensive began on 19 November.

Three complete Soviet Armies, the 1st Guards, 5th Tank and the 21st Army, with a total of eighteen infantry divisions, eight tank brigades, two motorized

brigades, six cavalry divisions and one anti-tank brigade crashed into the northern flank of German 6th Army where the thinly spread, outnumbered and poorly equipped Romanian 3rd Army mounted a spectacular but ultimately futile day-long defence. The following day, to the south of Stalingrad, the infantry of the Romanian IV Corps collapsed almost immediately as a second Soviet offensive using two armies hit them. Both Soviet forces raced west in a pincer movement that met two days later near the town of Kalach and closed the ring around Stalingrad, trapping about 250,000 German, Romanian, Croatian and other foreign volunteers inside the pocket along with around 10,000 surviving Soviet civilians and several thousand Soviet POWs captured earlier by the Germans. Nearly 50,000 German soldiers from 6th Army were pushed aside outside the pocket and the Soviet units formed two defensive fronts, facing 'inward', to defend against breakout attempts and another facing 'outward' to defend against any German relief attempt.

In September, Hitler had declared that the German army would never leave Stalingrad. At a hastily gathered meeting on 20 November at his Berchtesgaden retreat in Bavaria, he met with Colonel-General Hans Jeschonnek, Chief of Staff of the Luftwaffe, and asked if an operation like that at Demjansk could be mounted. Jeschonnek replied, without much thought, that the Luftwaffe could supply the 6th Army with an 'air bridge' provided that suitable airfields could be found and every available transport was drafted into service, allowing the Germans in the city to fight on while a relief force was assembled. Two days later, Goering announced, 'Mein Fuehrer, the air bridge to 6th Army in Stalingrad is personally guaranteed by me. You can rely on the Luftwaffe.' Later, Goering would claim that, if he had not agreed, the Luftwaffe, and especially Goering himself, would have been blamed for the fall of Stalingrad.[4]

The situation at Stalingrad was very different to that at Demjansk. That operation had supplied a corps-sized unit in good weather and in an area without any significant Russian fighter cover. General Oberst Wolfram von Richthofen, head of the 4th Air Fleet (Luftflotte 4), tried in vain to overturn the decision to attempt to resupply the city by air, arguing that the resources to do so were simply not available. Even if every Ju52 aircraft from all fronts were assembled for the operation, including the ones from Europe and North Africa where they could not be spared, only 750 aircraft would have been made available and success would still not have been guaranteed. General Paulus had already reported that, in order to defend Stalingrad, his army would require 650–1,000 tons of supplies per day depending on the scale of activities expected of them and whether the 50,000 horses within the pocket could be used as meat or if fodder also had to be flown in for them. In fact, a supply of between 300 and 350 tons per day may have been enough, but even these levels could not be achieved. The 6th Army, deep in Russian territory, was by now closer to the borders of India than to their own homeland and supply lines were stretched to breaking point.

The air supply mission failed almost immediately as many German transport

aircraft fell to heavy Soviet anti-aircraft fire and fighter attacks. The winter weather was atrocious and flying only possible for a few hours or a few days in succession, restricting not only the transport aircraft but also the fighters protecting them and the Stukas and bombers attempting to destroy enemy tanks and gun emplacements on the supply routes into the city. Even if the weather at the airfields outside the city was clear or passable, the airfields within might be fog-bound or covered with deep overnight snow and then the aircraft had to turn back. If the airfields in Stalingrad were open, fog and storms forced aircraft to remain on the ground at the jump-off points and then bitter complaints from the defenders came thick and fast. The aircrews flew whenever possible, always dicing with death, especially at landing strips which were often blocked by crashed aircraft, shell craters and snow drifts, and losses were high.

As long as there were airfields available as jump-off points outside the city and landing sites inside it there was still hope, but it did not last long. One by one the Russians wrested the airfields from the Germans until, by January 1943, the Luftwaffe was forced to rely on air drops of supplies, which did not always reach their targets. The Russians constructed decoy drop areas complete with correct flare patterns that lured German aircraft to drop supplies outside German-controlled areas. Often, the bomb canisters converted to carry rations dropped by He111 or Stukas disappeared into snow drifts or the soldiers were simply too weak to carry them back to their trenches.

Despite the best efforts of the aircrews, only around 10 per cent of the required amount of supplies could actually be delivered. Mistakes were common (one aircraft arrived carrying 20 tonnes of vodka and a consignment of summer uniforms) and pilots were shocked when they managed to land to find starving soldiers too exhausted to unload the food. By November 1942, the German soldiers in the Stalingrad pocket were rationed to 200g (about 7oz) bread, 200g horsemeat (including bones), 30g cheese, 30g fat and 3 cigarettes. By mid-January 1943, this already insufficient diet for fighting under extreme winter conditions had to be cut drastically by to just 75g bread, 200g horsemeat, 24g vegetables, 12g fat, 11g sugar and 1 cigarette.[5] In a gesture of solidarity, back in Berlin General Zeitzler limited himself to their level of rations but after a few weeks had become so emaciated that Hitler personally ordered him to start eating regular meals again.

As all available Ju52s headed east in November 1942, glider squadrons received their orders to join the airlift. Leutnant Raschke, an officer of 1st Airlanding Wing based in Saporoschje, later noted that in December 1942 orders reached Hauptman Kiess from General Student to send a liaison officer to the area of operations north of the Sea of Azov (the sea area between the Crimea and the Volga River) and that the glider groups were to take up position at jumping-off points around Stalino, Taganrog, Rostow and Nowotscherkask to speed up the Stalingrad airlift. Fighting positions were planned at Makejewka, then Stalino and later Saporoschje. In early January 1943, at different times and by

different routes, the DFS 230 gliders flew in to Russia, with reserve aircraft being transported by rail. In all, 170 towplanes and around 350 gliders, including Me321 Gigants, gradually assembled at the designated airfields around Stalingrad after flights of up to 5,000 kilometres from their home bases. Leutnant Dittebrandt flew an He111Z, the specially created 'Siamese twin' Heinkel bomber designed to act as tug for the Me321 of GS2. The two He111s, joined at the wingtips, were the only aircraft capable of towing the huge gliders and flying via Reichshof, Schitomir, Poltawa and Stalino to Makejewka. Dittebrandt knew that every mile east increased the risk to his slow, ungainly towplane from the Russian fighters now crowding the skies around Stalingrad. 'Besides those worries, we kept receiving nonsensical orders to hurry up!'[6]

As the gliders gathered, arguments raged about whether they should be used at all. Bad weather and heavy anti-aircraft fire around the city meant that the risks to the gliders were even higher than those to the powered aircraft. By now, the desperate Luftwaffe had transferred any aircraft it could find to the Russian Front, including He177s, totally unsuitable for the intended use as transports and even FW200 Condor aircraft from French coastal bases. Field Marshal Milch arrived from Berlin and told the glider crews 'I remain of the belief that my plan for a relief operation by glider should go ahead with strengthened support from fighters and [Me110] Destroyers in the city.' Officers of the Airlanding Wing pointed out that their gliders 'would be obstructed by other aircraft. No-one seems concerned about gliders lying about (on the landing zones).' Milch refused to accept the logic, demanding that new landing zones be established in the Stalingrad suburbs and that an officer of the group be sent to find them. The fact that no strengthened fighter escort was available made little difference.[7]

On 23 January, three He111 tugs stood by at Makejewka, each acting as tug for fully laden Go242s of 4 Supply Squadron carrying around 5 tonnes of medical and food supplies. The previous day, Gumrak, the last German held airfield, had fallen to a Russian attack and with it went the last air route in or out of the city, so this mission would be the last effort to reach the trapped men. In the poor weather and darkness, Leutnant Raschke had improvised a system to guide the gliders using torches in the back of the Heinkels. A green signal showed they were dropping low, red meant too high and white that they were in the right position. The weather was bad and deteriorating so much that every hour from 1630hrs throughout the night, the He111 engines had to be started to prevent them freezing. Midnight came and went. Around 0300hrs, VIII Fliegerkorps finally cancelled the mission. The three Heinkels would go ahead and drop supply canisters, but the gliders would stay behind.

Four days later, another Russian attack split what was left of the 6th Army in two. German doctors were ordered to stop feeding the estimated 25,000 wounded men. Finally, on 30 January, Paulus surrendered. Some sources claim that over 11,000 German and Axis soldiers refused to accept the surrender and

continued to resist, fighting on from cellars and the city sewers until March 1943, believing that fighting to the death was better than the prospect of a slow end in a Soviet POW camp. Soviet documents later claimed that another 2,418 Germans were killed in the fighting to clear these isolated pockets of resistance and over 8,500 finally taken prisoner. It would not be until 1955 that the last of these men was repatriated and, by that time, of the 91,000 men taken prisoner at Stalingrad, only 6,000 had survived captivity.

The loss of the 6th Army at Stalingrad was a bitter blow to the Germans but it did not put an end to fighting in the region. German Army Group (A) was now off-balance and in danger of becoming trapped in the Caucasus by the rapid advance of Russian reinforcements. Alexander Werth observed Red soldiers on the move through the dark and frost, the path lit by a string of bonfires along the road:

> Such was the endless procession coming out of Stalingrad; lorries, and horse sleighs and guns, and covered wagons, and even camels pulling sleighs – several of them stepping sedately through the deep snow as if it were sand. Every conceivable means of transport was being used. Thousands of soldiers were marching, or rather walking in large irregular crowds, to the west through this cold deadly night. But they were cheerful and strangely happy, and they kept shouting about Stalingrad and the job they had done.[8]

Further north, another Russian offensive was again threatening the Leningrad front. As the 6th Army lay trapped in Stalingrad, the desperate airlift had taken up most of the Luftwaffe's resources and throughout that winter, other German units found themselves equally hard pushed but now without the air support they might have expected. The situation came to a head along the supply lines of Army Group North, this time at the town of Velikye Luki.

The Velikye Luki Kessel, 24 November 1942–16 January 1943

In early November 1942, the German 11th Army had arrived to reinforce the badly mauled units around Cholm, Demjansk and Velikye Luki after the heavy fighting of the previous winter. It was a massive boost to morale to be joined by the victors of Sebastapol under von Manstein, widely regarded as one of the most able German field commanders and taken as a sign of an impending offensive to remove the Soviet threat to the line. Almost immediately, though, the 11th were redirected south to support forces around Stalingrad, leaving a gap in the line from Cholm in the north to Velizh in the south. The only forces left in the area were the 83rd Infantry Division around Velikye Luki in the centre and the 3rd Gebirgsjäger (Mountain) Division slightly to the south. The LIX Corps, renamed Group von der Chevallerie, was given the added responsibility for

defence of the entire area the 11th Army had evacuated without any additional troops. With the 11th Army gone, LIX Corps was left to its fate.

Both the 83rd Infantry, commanded by Major General Scherer, now wearing his Knight's Cross for his defence of Cholm, and the 3rd Gebirgsjäger were experienced divisions. Under strength after the fighting of the previous summer, the 83rd in particular was dangerously overstretched, with companies each defending up to three kilometres of the front directly west of Velikye Luki. The 3rd Gebirgsjäger, tasked to defend an area so bleak that there were not even farmhouses to provide some shelter from the winter snows, was also split between commitments in Norway and Russia and had left one of its infantry regiments and an artillery battalion behind after being badly hit during the drive on Murmansk.

The Soviet attack would be led by the 9th, 19th, 21st and 46th Guards Divisions, with several ski-equipped battalions, tank brigades and nine rifle divisions in reserve, all relatively new troops. The Soviet policy of allowing units to burn out, then withdrawing them to be rebuilt, meant that most of these divisions had been destroyed and reconstituted at least once and in the battle for Cholm, for example, the 249th Estonian Rifle Division had started the battle with 8,000 men but by the end of the month had been reduced to just 1,400 – a casualty rate of over 82 per cent. With that loss rate, unit cohesion was a major problem.

Despite the strength of the Russian force, Velikye Luki was ready for a siege. Since its capture by 11th Panzer Division in August 1941, the Germans had constructed concrete bunkers and tank traps, stockpiling supplies of food and ammunition for use only if the city was encircled. Key locations such as the West Railway Station (actually located in the eastern part of the city and which doubled as a bunker and supply depot) and the medieval fortress known as the Citadel, located in the western quarter, were fortified. The Citadel, guarded on three sides by the River Lovat and whose thick earth-and-mortar walls made it a strong defence against artillery fire, had a commanding view of the bridges over the Lovat and could control access to the city itself. The plan of defence was terrifyingly simple: force the Soviets into a bloody battle of attrition by a fight to the death for each strongpoint, then fall back to the next prepared position.

In early November the Soviets began attacking the German supply lines with artillery and air strikes. At this stage of the war, though, the Soviet Air Force restricted itself to operations less than twenty miles behind the front on such missions and this meant that the rail network itself was largely undamaged, although the Germans had difficulty in actually getting supplies to their most forward units. Then, on 24 November, strong Soviet forces began moving on Velikye Luki from north and south, skirting the screen of fortified positions east of the city and meeting only scattered resistance, so that, by nightfall, the Soviets had Velikye Luki nearly surrounded. German units dug in along the Kuban stream were quickly overrun and the Soviets were able to launch their attack into the city the following day. The attack was held off and the Soviets suffered heavy

losses but more assaults came on 26 November and, on the 27th, the Soviet 357th Rifle Division completed the encirclement of the city. The last telephone call into garrison headquarters came that day but after that all communication with the outside world was by radio only. Almost daily for the following seven weeks, the Soviets pressed home attacks, each one beaten back with steadily mounting losses.

Far to the south, Stalingrad was eating up German resources so that there were only a few Luftwaffe units still flying on the Velikye Luki front. These performed a superb job of resupplying the city as best they could with the basics. A composite *Gefechtsverband* (battle group) was formed under the command of Colonel Wilke with aircraft drawn from bomber and Stuka groups to drop supply canisters of food and ammunition, since this time there were no airfields within the perimeter. Bad weather hampered these flights and increasingly desperate calls for ammunition were being received: '6.12.1942 – Ammunitions to last for another eight days, when gliders? 9.12.1942 – Ammunition urgently! 12.12.1942 – Supply canisters not reaching us! Absolutely necessary glider operation takes place!'[9] The supplies that LIX Corps needed were being dropped to the 6th Army and all that was available to Leutnant-Colonel Freiherr von Sass of the 277th Infantry Regiment, commander of the garrison, were encouraging words. On 16 December, Sass received a radio message from the Fuhrer to tell him: 'I commend you and your soldiers for holding so bravely. I am convinced that you will hold like iron, just as General Scherer did in Cholm, until you are relieved.' Sass had little choice but to assure Hitler that 'Velikye Luki will be held until the last man' but went on to beg for supply drops to be made by the Luftwaffe.[10] By 18 December, the ferocity of the fighting meant that the Soviet 20th Motorized Division and 291st Infantry Division had a combined strength of only 6,200 men, the 21st and 46th Guards divisions were destroyed, the 9th and 19th Guards divisions were at breaking point and the 249th Estonian Rifle Division had suffered some 1,100 desertions going over to fight under the Wehrmacht against their Russian masters. The already weakened German forces had also suffered terribly – one Gebirgsjäger regiment had lost all but two of its officers and sixty of its 786 other ranks.

Eventually, Go242 gliders of 1.(GO)/VK (S) V were brought from the south to join the resupply missions, landing around the goods yard of the railway station where Unteroffizier Lorenz had gone in ahead to prepare landing lights to guide them in. The ring of anti-aircraft guns around the city had already taken a heavy toll and the glider pilots had adopted a new tactic that seemed to offer some chance of reaching the LZ by 'dive gliding' – releasing high and diving rapidly into the target area – a technique resurrected by US pilots attempting to reach the besieged Marine base of Khe Sanh in Vietnam twenty-five years later. Oberfeldwebel Rademacher, who flew into Velikye Luki with his co-pilot Obergefreiter Weyermanns on the day Hitler's message was received, piloted a glider carrying a load of 3 tonnes of medicine and post. It was a dark night and

after about two hours in the air they were over Velikye Luki at a height of about 2,000 m. The tow pilot circled to make sure they were over the LZ and then released them. Below, the green and red lamps marking the LZ could be seen and they began to fly towards them.

> Then the first illumination round was fired. I made a fast turn as green flares were fired from the Russian positions. At about 1000m the machineguns opened up but fortunately they didn't reach us. I was terrified as I pushed the GO down and our speed reached 370 km/h. I pulled into a high bank to the left and applied full flaps and airbrakes as I reached the edge of the LZ.[11]

The biggest danger at this point was overshooting the LZ and crashing outside the German perimeter. As he steered towards a small hut at the edge of the LZ, Rademacher hit a stone column and his glider swerved across the ground, breaking up as it did so. As the glider slid to a halt,

> Pioneers got us out and sent us to the medics as they quickly unloaded the glider. From there we went to the command post and stayed there three hours until an air strike began. It was an eerie bombardment and it was there in the command post, with dead and wounded lying all around, with the noise and the stench, that I learned the terror of war. We glider pilots ended up fighting as a group on the ground.[12]

More GO crews brought in light anti-tank guns, artillery, *Nebelwerfer* ammunition and even squads of specialists into the city. Unteroffizier Mayer had landed near the station and watched as two more aircraft came in, taking heavy flak as they landed. The engineer of the first was reported killed on the approach and the aircraft skidded right up to the windows of the railway station before settling. The second (flown by Unteroffizier Hirschmann) was carrying artillery rounds and Russian tracer rounds sparked off a fire in his fuselage as he came in to land. Hirschmann later reported that his engineer had watched as the slipstream had blown the fire out. Minor miracles like this kept the flow of supplies to the city coming but in the end it was not enough. Luftwaffe losses were very high. More than 80 aircraft, including a number of priceless He111 bombers and Ju52 transports, were lost during efforts to free the city.

A second army corps, commanded by the chief of staff of Army Group Centre, Leutenant-General Otto Wohler, was pushing from the south-west toward Velikye Luki, suffering 9,940 casualties by mid-December, its only replacements coming from those wounded who could be quickly returned to action but, despite their heavy losses, Wohler's men were determined to rescue their surrounded comrades. By January, Sass was still sending out long, detailed situation reports describing how, although the hundreds of wounded soldiers were

being protected as much as possible from the weather and the enemy, there was little more that could be done for them. The medical staff had been so badly hit that captured Estonians had been pressed into service to tend the injured but there was almost no medicine left. Food rations were minimal, and what little horse meat remained was rotten. Disease was rife. Ammunition was in short supply and the Russians maintained a constant barrage of artillery and mortar shells and air attacks in any type of weather.

On 15 January, the last radio messages came from the eastern sector. At 0440hrs Sass radioed that, 'a breakout appears out of the question; because almost 2,000 wounded would fall into Russian hands . . . help must immediately come from the outside. Urgently request reply.' A few hours later, he again asked for help: 'We cannot break out. You must immediately break through to us.' At 0840hrs, a last, despairing message from the beleaguered garrison: 'Urgently request artillery fire.' That was the last heard from the force. Velikye Luki was officially declared lost the next day.[13]

By now, STAVKA, the Red Army high command, had recognized that one of the key factors in successfully fighting the Germans would be neutralizing the Luftwaffe's air superiority. To do this would require an almost total re-structuring of the Voyenno Vozdushnye Sily (VVS, or Soviet Air Force), both in its organizational framework and its tactical and strategic doctrines and General A A Novikov was appointed in the summer of 1942 to do the job, in recognition of his effective and innovative use of airpower on the Leningrad front. By the end of the year, the Red Air Force had become a much more effective force but had yet to face a major test. That test would not be long coming. Early in 1943, Novikov found the perfect testing ground for his theories: the Kuban.

The Kuban bridgehead: February–October 1943

On 4 February 1943, a Soviet assault group established a beachhead just south-west of the Black Sea port of Novorissisk, catching the Germans offguard and putting them in danger of being encircled. Since the port anchored the southern flank of their bridgehead over the Kuban River, Kleist, commander of Army Group A, was all too aware that the Red Army was now ten times closer to Rostov, his only escape route from the region, than he was and he knew he had to withdraw immediately. Hitler, convinced his earlier intransigence still held good, demanded instead that he stand and fight. Kleist knew it was a death sentence and fortunately Hitler quickly came to realize that any action other than withdrawal would be futile now that the strong Russian thrust south to capture Rostov had driven a wedge between the Donets Basin and the Kuban region of the Caucasus. The Germans launched immediate local counterattacks, but the Soviet beachhead held, aided by the region's foothills and rugged terrain, and soon reinforcements in increasing numbers from both sides began to arrive at the

sector, threatening to create a full-scale campaign. The opportunity Novikov needed for his air force to make the transition from a defensive to an offensive force had arrived.

The German-held Kuban bridgehead, situated along the Taman peninsula, was an area of extreme importance to both sides. The Germans saw it as essential to protecting the eastern approaches to the Crimea, the Soviets as a launch-point for another possible German offensive into the northern Caucasus, but the campaign on the Kuban was an inconclusive round of limited ground offensives that today is almost unknown in the West. The air battles fought there, though, would be a turning point for the growth of the Soviet Air Force. So much so that some Soviet sources claim the battle – so intense that General K V Vershinin, the main Soviet air commander of the sector, claimed on some days he could see an aircraft fall every ten minutes in up to 100 air battles a day – to be as important to their war effort as the battle of Midway was to the Americans.

The German Fourth Luftflotte, which included glider groups equipped with DFS 230 and Go242s, was responsible for this area but this time warned army commanders from the outset that a full airlift was impossible. Gliders of 1st, 2nd and 3rd Groups of 1st Airlanding Wing had already begun limited operations in late January from the Bagrevo and Kerch IV airfields in the Crimea and now stepped up their efforts, flying in food for the troops and fodder for the horse transport of the Mountain Division. Flying a shuttle service into the Kuban, glider pilots flew two or three missions per day, always, in accordance with standing orders, returning to their home bases at the end of the day.

Again, all available aircraft were pressed into service and flights by FW200 Condor aircraft began on 4 February, supported by their newly arrived ground crews. Originally intended to help with the Stalingrad lift, their journey from France had lasted several weeks and saw them make the last part by car from Poland, where their train had been halted. With the Kuban rapidly turning into a battle for air superiority, gliders provided a vital link in maintaining German fighter power. The Go242 was capable of carrying an Me109 fuselage and could be used to transport damaged fighters back for base repair at specialist depots around Bagrevo as well as maintenance crews out to unprepared, isolated and remote airstrips. They became a vital factor in maintaining Luftwaffe capability.

On 26 May a huge Soviet ground offensive got under way with a powerful armoured infantry thrust. Within hours, the Germans had launched a determined counterattack that soon stalled the Soviet drive with the loss of more than a hundred Soviet tanks on the first day alone. In the air, both sides launched an all-out effort to break the other. A Soviet raid by 338 aircraft was met by up to 1,500 German sorties on the same day. German sources claimed the Russians lost 350 combat aircraft that day, but Luftwaffe losses were so high that by 7 June they had to withdraw their own aircraft. A new German offensive was launched in July but failed to achieve its objectives and Hitler called it off after just twelve days. Sensing victory, the Russians pressed home a new counteroffensive.

Fighting on the ground continued until October, with gliders still running the gauntlet of enemy fighters, when German forces evacuated the Kuban.

The tide was turning. German forces were being pushed back as they attempted to disengage from the determined Russian onslaught. Time after time, Russian forces encircled the Germans and glider flights were sent in to deliver supplies. In most cases, they were supplying strategic points in towns and cities but, as the withdrawal continued, found themselves being asked to supply a moving target.

In March 1944, Russian advances had effectively cut off the 300,000 men of the 1st Panzer Army from their rear areas and the formation began an epic fighting retreat. DFS 230 gliders of Towgroup 2 helped resupply the force with fuel and ammunition, flying out wounded on the return trip, always under threat from Russian fighters. Feldwebel Sandvoss of 1.(DFS)/Schleppgruppe 2 recalled flying at low level, day after day, sometimes with loads hanging out of the doors of his overladen aircraft. As well as the 1st Army, gliders based in Romania were also attempting to support the encircled Tarnapol garrison and flying daily missions there. As the long retreat from Russia began, the list of names of towns and cities the glider crews supplied – Tiraspol, Nikolajew, Rostov, Kerstch, Sebastopol – grew ever longer.

Back in Germany, gliders were also being considered for use for more than just supply runs. Kampfgruppe 200, a Luftwaffe special operations unit, was giving serious consideration to a proposal by Oberleutnant Karl-Heinz Lange, a former glider pilot who had been wounded in Sicily, to create a suicide unit to fly glider bombs into hydro-electric plants deep in Russia as part of Operation Joseph. In April 1944 Gothaer-Waggon-Fabrik, builders of the Go242, had put forward plans for a guided 3,000 kg bomb with a cockpit, wings and controls and designated Type P55. The weapon was never put into production but at least 120 volunteers had already stepped forward and were undergoing glider training at Hildesheim under the code names of 'Totaleinsatz' (Operation Total), 'Selbstopfer-Staffel' (Self-sacrifice squadron), 'Staffel Leonidas', 'Kommando Lange' and 'So-Staffel'. How much this was a true suicide unit in the same sense as the Japanese Kamikazes is open to question but men of the unit eventually flew FW190 fighters into action against US B-17s in late April of 1945 with devastating results.[14] By now, though, the risks being run by glider crews were tantamount to suicide in any case. By the winter of 1944, German forces had been pushed further back and were now facing yet another encirclement. This time, it would be among the bloodiest of the war so far.

The siege of Budapest, 7 November 1944–13 February 1945

Despite the loss of 120,000 Hungarians alongside them at Stalingrad, Germany still regarded Hungary as an 'unwilling satellite', and on 16 October 1944, Hungarian Regent Miklós Horthy was forced to resign. Germany installed

Ferenc Szálasi, leader of Hungary's fascist Arrow Cross (Nyilaskereszt) party as Prime Minister and any hopes Hungarians may have had of escaping the war were gone. Two weeks later, more than a million Russian soldiers were pushing forward in a pincer movement around the capital, Budapest.

On 7 November, they began to move into Budapest's eastern suburbs, advanced through the town of Pest, twenty kilometres from the city's old town and halted. Once again, Hitler demanded that Budapest be held and declared it a Fortress City. When the offensive got under way again at Christmas and the road linking Budapest to Vienna, its last link with the outside world, was cut, there were nearly 80,000 German and Hungarian soldiers as well as over 800,000 civilians trapped in the city. The Russians sent two men to discuss surrender but they were never seen again. Both sides blamed the other for their loss but the consequence was a more determined Russian effort to take the city. Progress was slow but steady – so slow, in fact, that István Deák, then a child in the city, later recalled that

> generally life in Pest returned to something like normal at an astonishing speed: peasants began to bring in food, expecting to be paid in gold or family possessions, and while the fighting was still continuing in Buda a movie house opened in central Pest. It showed the Soviet film *The Battle of Orel*, in which the audience was treated to the double thrill of being able to watch Soviet airplanes machine-gun and bomb the enemy first on the screen and then outside the theatre.[15]

Attempts to break through to the garrison failed and by January 1945, intense fighting was taking place. Ferihegy airport had been taken by the Russians just before the start of the siege and resupply was fast becoming a problem. At first, some supplies were brought up the Danube by barge under cover of darkness, but when the river froze the Luftwaffe was called upon once again to provide an airlift. Using some of the main avenues and the park next to Buda Castle as landing zones for planes and gliders, a link was maintained until early January when heavy losses meant powered flights into the city were stopped.

Gliders continued to make hazardous trips into the Blutweise Park landing strip near the castle throughout January. On the night of 20/21 January, towplane pilot Hauptman Reich made four sorties by Stuka over the burning city to deliver DFS 230 gliders, twenty of whom set out that night. Three were shot down over Russian lines. Heavy fog prevented flying the following night. During 22/23 January, another eleven set out but this time only four reached German lines. The next night, nine left and six made landings in the Blutweise Park. The LZ was small and often covered in smoke or fog and many pilots failed to reach it. Feldwebel Filius crashed into the roof of a house in the city centre. Obergefreiter Schiermeier made an emergency landing on the Russian side after his tailplane was damaged by a breaking tow rope. Albert Schlupmann circled

the city looking for the landing lights and eventually landed near a Soviet anti-aircraft battery. He almost managed, after several adventures, to reach German lines but ended up in captivity anyway. Those who made it into the LZ were directed to Luftwaffe command posts in the cellars of the Belle Vue Hotel for reassignment as infantrymen. Unteroffizier Jäger flew into Budapest on the night of 23/24 January. After reporting to the command post, he was sent to join other pilots manning a machine-gun post in the cellars of the ministry building on the banks of the Danube. Making his way there through a maze of ruins, cellars and sewers, Jäger found people who had been living underground for a month.

> From the sick bays came the wails of the wounded. The air was unbearable. Then there were the cries of the little children. Here and there, people had managed to find snow and were melting it to at least make a kind of thin soup and smoke from woodfires filled your eyes. I was happy to finally reach the ministry and meet up again with my comrades from the squadron.[16]

Thirty-five glider pilots eventually reached the cellar and held that position for the next three weeks as the battle of Buda raged.

By the beginning of February, it was clear that, for pilots flying into the city, there was no way out. Still, they flew in. Five left on the night of 4/5 February but only two made it into the LZ. Two more left on the night of the 7th. By now, Russian troops were pouring accurate fire onto the LZ and landing more gliders would be futile. On 11 February, Gellért Hill finally fell after six weeks of fighting to a vicious simultaneous Soviet attack from three sides. Soviet artillery now dominated the entire city and shelled the remaining defenders, concentrated into an area less than two square kilometres, mercilessly. On 10 February, after capturing the southern railway station, Soviet marines established a bridgehead on the castle hill, cutting the remaining German forces in two. Facing a hopeless situation, the German commander, General Karl Pfeffer-Wildenbruch, decided to go against Hitler's orders and attempt to break out of the city. Jäger and his fellow pilots fought until the night of 11/12 February and then tried to join the breakout, following a half-kilometre-long canal but found a blockhouse there and no way out.

Using a heavy fog as cover, German and Hungarian troops and those civilians able to make the journey attempted to escape in three waves. The first wave was successful and a great many escaped but the Soviets were alerted and bracketed the following groups with shellfire. Only around 1,000 men managed to survive to reach the wooded hills north-west of Budapest and escape towards Vienna. Finally, on 13 February, the remaining garrison was forced to surrender. For the Germans, the siege of Budapest marked their last major operation on the southern front and for the Russians a dress rehearsal for the attacks on Vienna

and, eventually, Berlin. In all, seventy-three DFS 230 gliders had flown to Budapest, forty-one actually making it into the city. Eleven were known to have been shot down by flak and others lost to weather, mechanical failure or emergency landings. At the beginning of March, forty-nine pilots were formally listed as missing.

The siege of Festung Breslau, 8 February–5 May 1945

Just as the battle for Budapest was reaching its climax, far to the north Soviet forces were nearing the city of Breslau (now Wroclow in Poland). The city was the capital of Silesia and an important industrial and communications centre housing a number of important industrial plants manned by prisoners from nearby forced labour camps such as Brugweide and the Gross-Rosen concentration camp. The city was outside the range of Allied bombing and had gained a reputation as the 'air shelter of the Reich' to where many government and civil offices had been relocated from bombed western and northern German cities. It was not until autumn 1944 that the first Soviet bombers appeared.

In July 1944, Hitler had issued secret instructions that Breslau must be turned into a *festung* (fortress), to be defended at all costs as part of his 'Eastern Wall' on the River Oder, still thought to be an insurmountable barrier to Soviet invasion. The Gauleiter of Silesia, Karl Hanke, was appointed by Hitler as the city's *Kampfkommandant* (battle commander) with authority even over the military commanders of the garrison. Work on the defences of the city had begun in June but it was not until the formal announcement of 'Festung Breslau' in September that work really got under way. At first, the people of the city were not aware of their new status but Stefan Kuczynski, a Polish doctor who had lived in Breslau since the First World War, recalled

> in our streets, into our domestic life, something strange began to creep in. We saw cattle herds, which were driven to the slaughterhouse. One saw truck columns, which transported mysterious cargoes covered with tarpaulins. Other lorries carried crates and bags with food, which was accommodated in cellars.[17]

In December, the military commander of Breslau, General Krause, suggested evacuating the civilian population but was overruled by the city's political master, Hanke, who then replaced Krause with General Niehoff. Instead, the civilian population – men women and children –were put to work building two defensive rings twenty kilometres from the centre of the city and helping to stockpile supplies for long-term siege.

On 12 January 1945, Soviet forces crossed the borders of eastern Prussia and began to advance into Silesia itself. Suddenly, on 20 January, with refugees from

the east crowding into the city, Hanke changed his mind about fighting in a city crammed with civilians and announced 'Men of Breslau! Our state capital has been declared a fortress. The evacuation of the city of women and children has started and must be completed quickly.' All that day and the next, loudspeakers declared 'Attention! Attention! Women with children march by foot on the road from Opperau toward Kanth! You should gather in the south suburb.' Around 630,000 were expected to pack and leave with virtually no warning and no transport to help them. In January temperatures falling to -20°, old people, the sick, women and children began to cross the Oder bridges. German propaganda about Russian atrocities fuelled the fear and soon the evacuation became a panic. Hans Joachim Terp, a civilian in Breslau at the time, later described how people had crammed into the Freiburger station, whose tracks led west:

> You couldn't get onto the platform, because the crowd was all moving one way. Children were rolled over and crushed. A railwayman told me 'yesterday they took away twenty four children here, dead children', they had been just trampled on the stairs. It was cruel.

On 22 January, voluntary worker Vera Eckle was ordered to take part in a supply trip to the refugees.

> A snowstorm raved, the snow lay a metre high, and it was ice cold. The children had put on several dresses one above the other and stood helplessly beside their mothers. Here an old woman, who could hardly breathe, there an old man on crutches, who slipped continuously, because it was so icy. It was a dreadful sight. Then the Volksturm man cried, 'Hurry girls, carry the bedcovers forward and gather up the dolls!' 'Which dolls does he mean', I asked myself. And at that moment I tripped over a bundle before me. I picked it up to throw to one side – 'God's sake, those are children, child corpses!', I cried. It was the greatest misery which I had seen ever in my life.

Unofficial estimates suggest the 'Breslau Death March', as it came to be known, cost up to 90,000 lives as many of those who survived the cold later disappeared into the inferno of Dresden on 14 February when Allied bombers pounded the city to destruction.

As the Soviets closed in, Breslau's defences were manned by a 45,000-strong garrison under the overall command of Field Marshal Schoerner of Army Group Centre but consisted of a ragged mixture of troops, including the newly formed 609th Infantry Division, elements of 269th Infantry Division, school and reserve units, an improvised SS regiment (SS Festung Abseiling 'Besselein'), thirty-eight battalions (each 400-strong) of Volkssturm volunteers, boys of the

Hitlerjugend, Police, Luftwaffe ground units and the remnants of several destroyed combat formations. Troops on leave or in transit were hurriedly reassigned to defence units. Its heavy weapons were thirty-two artillery batteries using obsolete German guns and a mixture of captured Soviet, Polish, Yugoslav and Italian artillery pieces and a total of fifteen assault guns and two Tiger tanks currently at a repair workshop in the city.

The Russian attack began on 8 February against heavy resistance from LVII Panzer Corps and counterattacks from 19th Panzer Division from the direction of Raciborz (Ratibor) and 20th Panzer Division from Jawor (Jauer) and Strzegom (Striegau). Although they slowed the advance, the panzers could not hold back the Russian tide and on 13 February, the Soviet 6th Army defeated the 19th Panzer Division's desperate defence of the autobahn in the area of Kostomloty – the only remaining link between encircled city and the remainder of the German forces – and completed the encirclement of Breslau. Two days later, the Luftwaffe began yet another airlift of supplies into an encirclement. This one would last another seventy-six days.

The following day the Soviets launched an attack on the city from the south and then from the west, which soon turned into bloody and savage fight for each house and street with the heaviest fighting in the area of the city's airbase and industrial district. The Soviets were reported to have lost seventy-six tanks in the first three days and at least another hundred the following fortnight when they tried to use tanks in the street fighting. Soon their tactics changed to using artillery to destroy enemy positions and engineers along with Marines to clear enemy strongpoints. By late March, the fate of city was sealed as the last strong German formations south-east of Opeln (Opole) were destroyed. Fighting continued as Soviets pushed German defenders deeper into the city and they, in turn, destroyed every house and city block behind them to slow the Soviet advance.

Jürgen Hempel, a 12-year-old Hitler Youth, had remained in the city with his mother. His father was serving in Russia and his older brother had fought at Monte Cassino and, as he put it later, 'I was as a twelve-year-old boy serving among soldiers and found it all a completely wonderful adventure.' From his home on Schweidnitzer Strasse, he was assigned to work with an infantry unit to provide food, run messages and other errands whilst his mother acted as medic. 'There was always something exploding somewhere', he recalled, and he and other Hitler Youth continuously ran the gauntlet of shell, sniper and air attack to find water from the broken pipes, waiting in the entrance of the stock exchange until the air was clear, then running with buckets to the well – and back. Air raids had burst pipes in the houses and he and his comrades were tasked with acting as a kind of fire brigade. Soon, the adventure wore off. Four hundred Hitler Youth, many of them his friends, died within weeks. His priorities changed and now the German people 'did not want to win the war, we wanted to only survive'.[18]

Another boy, identified only as Werner, later described life in the city for civilians:

> My mother, my six year old sister and I lived in the cellar and my father – a baker released a few weeks before by the army – was soon conscripted into the Volksturm. They had just one rifle for seven men. The supply of food was sufficient both for the soldiers and for the civilian population, because the stores had been supplied with enough for up to two years storage and at first there was still electric current in the cellars, which were connected [by] holes through the wall to those of the rest of the block. Later the current failed because of the ever increasing bomb and shell impacts. We made do – and very well – with carbide lamps, petroleum and candle light but our constant companion in the cellar was fear.
>
> The Russians worked by the clock: From midnight to the early morning it was mostly relatively calm. Then from six to ten am it was mostly artillery bombardment into the city centre, with continuing dull, rolling explosions, sometimes further away, sometimes more near. From ten to one pm came the airplanes, fighters first, then bombers. The cellar walls and the soil trembled again and again and we were all scared that the basement ceiling came could collapse and kill us all. The Soviet airplanes did not have far to travel because they were based just outside the city's defence ring and could land and refuel quickly. Around two pm, the bomb attacks would break off until around six. About ten pm, German airplanes, mostly Ju52s, came and brought medicines and ammunition, and perhaps also post.[19]

Breslau's airfield, at Gandau, was in the frontline. Fritz Morzik reported that

> any aircraft, regardless of the direction from which it approached the field and regardless of whether it cut its motors at high altitude and glided in for a landing or tried to come in at hedge hopping altitude, was soon caught in the cross beams of some thirty searchlights and subjected to concentrated fire. On the ground there were additional obstacles to be overcome. The landing strip itself was under constant artillery fire, since the Russian main front lay only half a mile from the edge of the field. The unloading of supplies, and the loading of wounded personnel for the trips back, had to be carried out under constant enemy fire and with the help of improvised lighting arrangements.[20]

The only alternative airstrip, a landing field on the Friesenweise and the Kaiserstrasse, two broad streets in the city, could be used in an emergency by skilled pilots but was of no real use most of the time, although light 'Storch' aircraft were able to use it to recover the wounded. The response, on 7 March,

was to order the construction of a new airstrip using the Kaiserstrasse in the city centre. Houses in the area were blown up and boys aged 10 and over, girls from the age of 12 and all available adults were put to work. Rations were only provided for those who had cards marked to prove they had been working. Under repeated air attack and artillery bombardment, an airstrip was slowly carved out of the rubble. Even before it was complete, gliders began using the new strip.

Gliders had been arriving in Breslau from the start and had flown in two battalions of 9. Fallschirmjaegerdivision in mid-February. By that time, the Luftwaffe had sixty-six towplanes, 204 Go242 and 233 DFS 230 gliders left, with 233 crews to fly them. After the loss of the Gandau airbase on 1 April, gliders became the sole means of getting supplies into the city but at a high price. On the night of 7/8 April, twenty-nine gliders set out for the city but only ten reached it. Russian searchlights and anti-aircraft guns were proving to be deadly effective. Where possible, Storch reconnaissance planes were sent to bring back the pilots and unconfirmed reports even suggest that FA 223 helicopters may have made attempts to recover downed airmen.

On 23 April, Unteroffizier Stephan volunteered for a flight into his home-town, reporting to Hauptman Reich at the Alt Lonnewitz airfield where he was shown aerial photos of the LZ taken by day and night. The night pictures were taken on a clear night like the expected weather for his flight. Standing out were the fires and the bend in the river that would be a useful marker for the flight. Beacons on the landing strip would only be visible at fairly low altitude (1,000–1,500 m) and he was warned that the Russians had built decoy strips that had claimed several earlier crews. The tow planes would be Do17 and He111s and, like many glider pilots, Stephan had little experience of working with these aircraft. Flying at low altitude behind a He111 in the early hours of the morning to avoid hostile fighters he remembered being captivated by the sight of the burning city whose flames reflected off the clouds. Suddenly, searchlights caught him and lit the cockpit brightly as, instinctively, he banked quickly and lost himself in the darkness. Turning east, he had enough height to allow slight detour and followed the river from the south-east towards the fires burning in the north-west. The LZ was a section of tidal channel in the city's river.

Reaching the city at a height of about 1000 m, Stephan could soon make out the landing lights on the LZ and the unmistakable flashes of artillery strikes on the Friesenweise and the Kaiserstrasse. To the north, a clear landing area was being lit by the Russians as a decoy, but too far away from the channel to entice him to land there. The problem was that the channel was lined with trees and presented a difficult place to put down. 'I circled to lose height and, on my last turn, clipped a house with my wing and needed to constantly correct myself as I came in fast. The trees along the channel slipped past me and the red lamp marking the end of the LZ was coming up very fast.'[21] Up ahead, he could see a bridge and, as a Breslauer, knew it stood on thick stone pillars. He quickly put down and, after a landing of just a few metres, the glider stopped near the bridge

and at the water's edge. A truck pulled up and men with axes and other tools approached, clapped him on the back and set about unloading the cargo. Stephan was directed to an artillery command post and given a very welcome shot of schnapps as he watched his glider being cut up and pushed into the river to clear the LZ so that the Russians would not be alerted to it. A second glider then tried a landing but missed the channel and came down hard, its wing broken and cockpit shattered. The heavily injured pilot was rescued and taken to the medics. Another glider that had started out with him never made it to the city. At the end of April, Stephan managed to find a place aboard a Storch flying wounded from the Friesenweise.

As the siege of Breslau dragged on, attempts to maintain morale included the issue of a chocolate ration to celebrate Hitler's birthday on 20 April but by now most knew that time was running out. On 4 May, when the city's senior clergy – Pastor Hornig, Dr Konrad, Bishop Ferche and Canon Kramer – pleaded with the garrison commander, Niehoff, to surrender the town, most military commanders agreed, but Hanke ordered Niehoff not to have any further dealings with them. The next day, Hanke fled the city in a Storch, using the runway he had forced the citizens to build. By then, over two-thirds of Breslau lay in ruins.

The fall of Berlin, May 1945

Meanwhile, Russian forces had continued their advance and by now were fighting in Berlin itself. By 25 April, Germany's glider forces were down to just thirteen DFS 230s and six Go242s yet still from the bunkers in Berlin came ridiculous demands for air supplies to be flown in. On 17 March for example, General Reinhard demanded a delivery of 500 tons of supplies a day to be sent to the Berlin garrison. To do this would have required 250 Ju52 flights each day at a time when the Luftwaffe could only muster 250 aircraft in total. It would require 1,000 tons of fuel for the aircraft when the Luftwaffe was rationed to only 800. A single attempt to carry out a large-scale resupply on 16 April was a disaster and, after that, only isolated attempts could be made. At night, gliders were still arriving in the capital whenever possible but heavy fire often prevented landing. On the night of 28/29 April, five DFS set out from their base at Rurik, each pilot carrying a letter from Luftwaffe High Command giving him priority on any flights leaving the city so that he could return to his unit for further attempts. Unteroffizier Kugler, navigating by the light of the fires raging all around, managed to find a landing place in the Tegel District, his load of ammunition quickly collected by the crew of a nearby flak tower. Unteroffizier Heim was forced down in the Mecklenburg District when his towplane crashed. The fate of the others is unknown. Kugler was on one of the last flights out of the city before it fell.

The next night, two DFS left Rurik in another attempt. Wilhelm Schneider

was badly hit on landing and dragged from his crashed glider by the Russians. The other pilot, Unteroffizier Göbel, was killed as he brought his aircraft in to land.

Then, at 0200hrs on 1 May, a single DFS 230 started out from Hohenmauth airfield and flew via Koniggratz towards Breslau carrying a load of Panzerfaust anti-tank weapons and ammunition. At the controls was Unteroffizier Thies; flying the He111 tug was the squadron commander of Tow Group 1, Oberleutnant Hönig. Flying towards the city, Theis saw flames reaching high into the sky miles before they reached the defence rings around it. He released over the city and began to circle to lose height when suddenly, at a height of around 700 m, searchlights found him and a flak round hit the cockpit wounding him in the head. Dazed, he managed to keep control of his glider and began to look for somewhere to land. It seemed everywhere below him was ablaze but finally he found a clear area and began to land. As he approached, he realized he was about to land in a cemetery and braced himself. Crashing into tombs and vaults, his glider came to rest with its tail jammed between two large gravestones. Everything was quiet. Theis clambered out of the wreckage and looked around him. The clock read 0305hrs.

Back at Rurik, the crews of the glider group knew the end had come. On 1 May they boarded a He111 and flew west to Eggebck in the Schleswig region where they surrendered to British forces. The glider war was over.

Epilogue

Even as Operation Varsity marked the high water mark of the 'bamboo bomber', its days were numbered. In March 1945, the Airborne Forces Experimental Establishment began testing the new Sikorsky R4 'Hoverfly' helicopter. Later, six army captains from 'C' Flight, 657 Air Observation Squadron, traded in their Auster aircraft and began a conversion course to the R6 helicopters that had performed so well in Burma. Army aviation had taken a new turn.

In the years after 1945, other countries experimented with glider use – Argentina, Australia, Canada, China, Czechoslovakia, France, India and even Turkey maintained glider forces or produced aircraft but never again would they fly on operations. Gradually, the Glider Pilot Regiment wound down until by 1950 it existed only as a headquarters and a small training section. It was disbanded to re-emerge in 1957 as the Army Air Corps, the badge unchanged from that of the original corps of 1942 but gone was the maroon beret of the airborne and in its place a sky blue beret of its own – chosen, it is said because it was felt that brawls against soldiers of other units who dared mock it would be good for esprit de corps. In April 1949, Operation Tarheel, a month-long series of exercises around Fort Bragg saw the last American use of gliders. They were formally deleted from the US armoury on 1 January 1953. In October 1949, the experimental sixty-seat XCG20 glider was equipped with engines and became the C-123 Provider that saw service throughout the Vietnam war and is still in operation today. The Russians maintained a glider force of three glider infantry regiments and Yak-14 gliders for twenty years after the end of the Second World War, finally disbanding them in 1965. In recent years, military theorists have been considering the use of gliders for 'Operations Other Than War' (such as disaster relief) and have concluded that they may be a more cost-effective means of delivering supplies than the helicopters and aircraft currently used.

The combat use of gliders is also not entirely a thing of the past. On 25 November 1987, two motorized hang gliders crossed the Lebanese border carrying guerrillas in an attack on the Israeli military base. Six Israeli soldiers were killed in the attack and the guerrillas were able to fly out of the compound and evaded search helicopters for hours before being killed. Israeli intelligence believed up to 200 fighters had been trained to fly. Gliders are back on the agenda. One, in particular, leads the way. The US Space Shuttle crews were recently awarded honorary membership of the American WWII Glider Pilots Association. The shuttle does not land under power. After re-entry it glides to earth – the ultimate glider.

Of the thousands of gliders produced, only a tiny handful remain in museums

around the world. Few books on the aircraft of the Second World War even think to include them. In 1962, replica Horsas built for the film *The Longest Day* were refused permission to fly across the Channel. The Air Ministry considered the design 'inherently dangerous'. What, then, of the men that flew them?

On 29 July 1945, the sleepy Sussex village of Stedham, near Midhurst, was the venue for a memorial service for the men of the Glider Pilot Regiment. Four hundred pilots, all that remained of the 1,200 recruited just a few years earlier, had been based near the home of George Chatterton. Now a brigadier, he had taken the opportunity to open his home to them all and to arrange a private service for the regiment to remember their fallen. He told them: 'In this regiment we aim at the discipline of the Guards, the toughness of the Commandos, individual intelligence and initiative of the Intelligence Corps' and spoke movingly of

> the things I have watched as the Commander of this regiment – the wonderful qualities of patience, discipline, and fortitude of all concerned. I have always wanted you to have the better qualities which are given to men. By that I mean simplicity, faith, and that good courage on which you would have to fall back when the real trial came – and you had them.[1]

Reporter Edward Denny of the *Evening News* watched as the men lay up their regimental flag in the small church and filed out. One man in twelve had made it through selection and of those select few, just one in three remained. As they marched into history, Denny believed that 'it gave one a nagging sense of dissatisfaction not to have been privileged to be of that goodly company – and a quiet pride in a country which can still produce such men'.[2]

Notes

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Appendix A:

Flying the Horsa

A pack of gliders sat tightly packed together on the runway, tow ropes already connecting them to their tug aircraft parked in a herringbone pattern along either side so that, as the formation took off, the whole would unravel like knitting. Bombers like the Lancaster, Wellington, Stirling, Whitley and Albemarle were all used as tugs during the war, along with the C-47 Dakota transports, but the closest working relationship had grown up between the men of the Glider Pilot Regiment and the Halifax aircrews of the RAF's 38 Group. On some operations, the Halifaxes would carry a small bomb load so that they would appear to be just another bomber formation and divert attention away from the gliders, but for this training mission they would fly empty.

To its crews, the cockpit of the Horsa felt 'like a greenhouse'. Its huge windscreen gave a 180 degree view from side to side and 90 degrees ahead and above – essential if the crew were to maintain visual contact with their tug aircraft and find their way onto a crowded LZ, but offering no protection at all for the pilots if they hit any of the dozens of obstacles that might be waiting for them. Behind the cockpit, a long, slim tube-like fuselage, 'for all the world like a London tube train', could accommodate twenty-eight fully equipped infantrymen on removable bench seats along either side or 7500 lb of equipment – enough to carry a jeep or small gun. It was an aircraft built to be expendable and had earned itself the nickname 'the flying matchbox' because of its flimsy plywood construction. In 1962, during the filming of the Pegasus Bridge assault for *The Longest Day*, replica Horsas were built but refused permission to fly across the Channel by the Air Ministry because, they said, the design was 'inherently dangerous'. More bluntly, the Americans, who flew a number of Horsas, were more used to the steel frames of their Wacos and soon re-christened it 'the flying morgue'. Dangerous or not, it would carry thousands of troops safely into battle.

Loading the Horsa Mk I was a tricky business. Manhandling vehicles and equipment into the narrow fuselage could be time-consuming and difficult. This became easier with the Mk II's hinged nose section which simply swung the cockpit to one side for access. Loads had to be secured and balanced correctly and the consequences of them moving in flight could be disastrous. Even more difficult, in some ways, were the problems of dealing with passengers. Weight loads were crucial to both glider and tugs and worked out on the basis that an infantryman in full battle order should weigh 210 lb, a sapper around 250 lb.

Unfortunately, this did not take into account human nature and pilots found men carrying all kinds of extra weapons, ammunition or equipment and even stowaways managed to find a way on board on some missions. Checking and reporting the load to the tug pilot was the final preparation before takeoff.

Clambering aboard through a door in the port side and stowing the ladder in the cabin, the first pilot – a staff sergeant or above who had completed the full training programme and wore the lion with blue wings badge of a qualified pilot – took his place in the port side seat. He would be responsible for the takeoff and landing of the aircraft. Beside him, the second pilot – a sergeant who had completed an abbreviated training course – wore the winged 'G' of a qualified glider pilot and would fly during the tow and assist the first pilot as required. The first pilot could, when needed, fly the aircraft solo, the second seat filled with ballast. In front of each seat was a steering column and rudder bar and between them a simple instrument panel consisting of an air speed indicator, compass, air pressure gauge, altimeter, artificial horizon, rate of climb/descent indicator and finally the tow cable angle indicator – usually known as the 'angle of dangle'. Attached to this were the tow release, flap and elevator control levers. A quick check of the locking levers holding the cockpit in place and of the controls and the aircraft was ready to go.

Communication between the tug and glider was by means of an intercom cable woven into the hemp tow rope and a TR9 radio in the Horsa cockpit. As the Halifax roared into life (engines were not run prior to takeoff to avoid the risk of overheating during the strain of getting both aircraft off the ground), the first pilot gave the signal 'take up the slack'. Keeping the wheel brakes on as the tug slowly pulled forward, the pilot waited until the rope went taut before signalling 'takeoff' and releasing the brakes. Immediately, the tug pilot opened up to full power to ensure the rope did not become slack or the glider accelerate into the rear of the tug.

At around 70mph, the glider would reach takeoff speed and begin to rise, climbing quickly to the 'high tow' position above the tug. This eased the drag on the heavier bomber and allowed it, too, to lift off. Together, the two aircraft would climb steadily to their assigned altitude. By the time they began to roll, the glider pilots had attended three separate briefings on the mission given by the army, the RAF and by the glider unit commander, so they were clear about their routes, timings and landmarks but command of the combination went to the tug pilot and it was his navigator who would determine the release point. Once at the cruising altitude, the glider would descend into 'low tow', passing through the bomber slipstream to fly 'directly behind the tug and one half the wing span of the tug below it'. This was the preferred method, the Horsa seeming to settle naturally into position and allowing visual contact to be maintained with the tug. Above 200 feet, if necessary, the undercarriage could be jettisoned to reduce drag and the glider would land on skids instead. Below this height and they risked the wheels bouncing back and hitting the rear of the aircraft.

In poor conditions, the 'angle of dangle' became vital, indicating when the glider was in danger of overtaking its tug and allowing the pilots to maintain the correct position. Overtaking the tug could wrap the tow cable around its wings or engines and could even pull the two aircraft together in mid-air, as happened to some during the Sicily invasion. Generally, though, the Horsa 'behaved' in level flight but it was never intended to be comfortable. A 'sanitary bottle' was clipped to the bulkhead behind the first pilot and a 'sanitary tube' was available for passengers in the main cabin. Crews quickly learned to provide a bucket for the inevitable airsickness that followed the buffeting of crossing the slipstream. Travel sickness tablets were provided before takeoff but a combination of the motion and natural nervousness were often too much. In-flight catering included a thermos flask for the pilots and flasks and ration packs stowed under the passenger seats (in Normandy, one unfortunate passenger had to endure comments about his courage when a flak splinter pierced a flask nearby, spilling hot tea into his lap and soaking his trousers).

As the combination approached their target, the tug flew on the required course that the glider should follow and passed the course to the glider crew. Three points, 'A', 'B' and 'C', each about five miles apart, were marked on the navigator's map and the glider would be released only at point 'C', worked out to ensure that the glider would reach within 1,000 yards of the target at a height of between 1,200 and 1,500 feet. This gave the pilot a left-hand turn through 90 or 180 degrees onto the LZ. The glider's own compass could be severely affected by the loads it carried, especially radios or other electrical equipment and this was an opportunity to note any deviation. The glider moved into 'high tow' and waited for the order from the tug pilot. On release, the tug continued in level flight and jettisoned the rope at a designated point.

The Horsa had a 'glide ratio' of 1:7.2, which broadly meant that it would travel 2,500 yards along the ground for every 1,000 feet of altitude it lost. In Normandy, two groups of gliders destined for the Orne bridges cast off together at 7,000 feet, giving them around twelve miles of flight. Those aiming for Pegasus Bridge flew inland, turned and came back towards the coast, landing exactly on target. Those aiming for the river ('Horsa Bridge') had only five miles in which to lose the same amount of height. By applying full flaps, a pilot could use the Horsa's maximum 1:1.5 glide ratio to put his aircraft into a 45 degree dive to lose height, pulling out at the last moment to touch down on target – a process one pilot described as 'dropping like a streamlined brick' – highly effective but nerve-wracking for the passengers and certainly adding to the pools of vomit that washed throughout the cabin on most flights.

Night flying was an important element of glider operations and pilots trained frequently with special RAF goggles heavily shaded to recreate darkness – although tales of pilots being ordered to wear them even when playing football were exaggerated. As far as possible, gliders only operated when there was at least some moonlight over the LZ and at night pilots used 'The Funnel', an imaginary

area 500–1,000 yards from the entrance to the LZ and worked out by calculating the height and glide ratio and confirmed by landmarks identified on air reconnaissance and maps. If the glider reached the Funnel at the right height, he would reach the LZ. In addition to this system, gliders would normally expect to be guided in by pathfinder paratroopers setting up the Rebecca/Eureka homing system and a flarepath of eight electric lamps in the shape of a 'T'. Three lamps set seventy-five yards apart formed the crossbar, five more fifty yards apart made up the stem. Three hundred yards from the stem of the 'T' a flashing light indicated the Funnel. All the lamps were designed to direct their beams straight up and would remain invisible on the ground.

The lessons of Crete were hard-won but later captured German assessments showed that they were very much aware that in free flight the glider was highly vulnerable. Their gliders were armed with machine guns (the Gigant routinely carried four air gunners and both the DFS 230 and Go242 could have machine guns mounted on top of the cabin). The Horsa had two hatches, one on the roof and another through the floor at the rear, where guns could be positioned, but they were rarely if ever used. Anecdotal evidence suggests that some soldiers may have simply fired through the sides and at least one Waco is reported to have landed with everyone aboard firing blindly through holes torn in the fuselage, but more often they relied on speed and surprise to get down before the enemy could react.

The ideal LZ was on arable land 2,000 by 1,000 yards square giving space for 300 gliders to land. Each LZ was subdivided into four squares, allowing commanders to direct their loads into specific spots. Landing in smaller LZs was possible and various methods were used to shorten the landing run. The Germans wrapped barbed wire around the skids to act as anchors and later fitted retro rockets as emergency brakes. The Allies developed arrester parachutes to deploy on landing and force the nose of the glider down, bringing it to a halt in a very short distance.

On landing, the first task was to unload. In theory, this was achieved by swinging open hinged sections of the nose or tail but in practice a rough landing could wreck the aircraft or jam the hinges so that the vehicles inside could not be extracted. Modifications to the Mk I included a bolted-on tail section that could be cut away if the nose section were damaged and this was backed up with a ring of cordex explosive known as a 'surcingle' to blow off the tail in an emergency. Powerful wirecutters were stowed aboard and one of the crew or passengers assigned the task of cutting away the glider's control wires on landing. Although generally successful, unloading could still be a frustrating experience and one crew, aided by some of their passengers, spent nearly an hour trying to open the rear of their Horsa, attacking it with axes, saws, boots and even standing on it and jumping to no avail. Later, a passing paratroop officer stopped to see if he could be of any help. When he gave the tail an experimental push with one hand, the whole section swung gently aside.

After unloading, glider pilots reverted to their secondary role as infantrymen and had to be competent in using whatever weapons they were carrying, from grenades to anti-tank guns. They would rendezvous with the glider commander and act as an individual unit (although many found it more practical to remain with the unit they had carried). Where possible, they were to be evacuated as soon as practical so that they could return to fly in reinforcements. Some, though, were needed to remain available for the recovery of aircraft by 'snatch' tow, a technique developed from the US Postal Service.

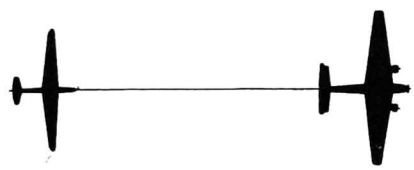
Any glider not damaged on landing could be recovered by using a specially adapted Dakota fitted with a winch and a cable ending in a large hook attached to the port side of the aircraft. On the ground, two light poles, painted yellow, were set up with yellow strips 9 feet by 3 feet laid on the ground to make them visible to the tow aircraft. A nylon rope was attached to these poles and laid out so that the glider was 300 feet behind and slightly to one side of the poles. The tow plane then flew low over the poles, snagged the rope with the hook and 'snatched' the glider off the ground. The nylon rope stretched enough to absorb the initial shock and a braking system on the winch ensured that the slack was taken up gradually and the glider pulled into the air in the 'low tow' position. The cable paid out through the floor of the Dakota instead of, as with other tows, the tail and so, although casting off was from the 'high tow' position, extra care was needed to avoid snagging the tailplane of the Dakota.

Unlike their RAF counterparts, glider pilots measured their experience not in flying hours but in 'lifts' – the number of successful takeoffs and landings made. Just six British pilots are known to have survived the four major operational 'lifts' of Sicily, Normandy, Arnhem and the Rhine Crossing.

Appendix B:

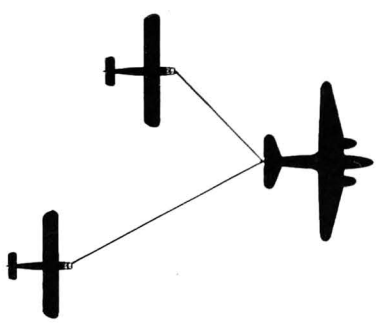
Towing techniques

The standard combination throughout the war for all nations was a powerful tug aircraft (usually a transport or bomber) towing a glider on a cable approximately 130–60 feet long. However, where circumstances demanded it, variations on the theme developed. The German DFS 230, for example, was usually towed by the Ju52 transport but could be used in combination with the He126 reconnaissance aircraft, the Ju87 Stuka, the He111 bomber or even the Me109 fighter.



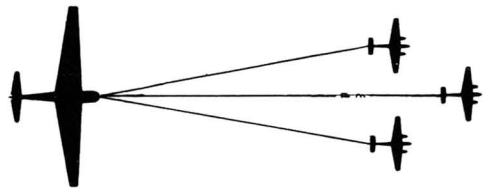
Known to the Germans as the 'Seilschlepp', this was the standard tow configuration for all forces. In this case the common combination of Ju52 transport and DFS230 glider using a 131 feet cable.

Lighter gliders, such as the Waco CG-4, could be flown in 'double-tow' formation. Towed behind a C-47 Dakota, glider 1 flew on a 350 feet tow rope and glider 2 on a 425 feet rope, both aircraft staying 75 feet apart. It was a dangerous technique and not widely used on operations.

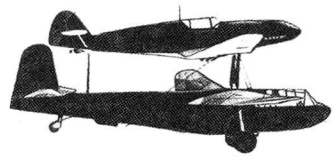


In poor weather or at night, the Germans used the 'Starrschlepp' – a rigid bar connecting the two aircraft via an articulated joint at the rear of the tug. Some flights were carried out by US aircraft using the same technique but it was not used operationally by the Allies.

To raise the enormous Me321 Gigant off the ground, the terrifying 'troika' tow required very skilful pilots as three Me110s had to take off in formation along a 4,000 feet runway. The lead aircraft towed a 328 feet cable, the others 262 feet cables. Hydrogen-peroxide rockets attached to the glider gave extra thrust.



The 'Mistletoe' or the Parasite tow proved effective but was never used operationally.



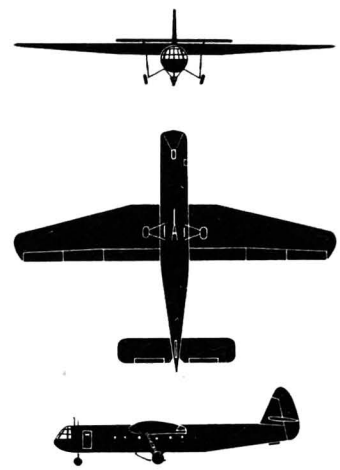
In 1947, tests were carried out in the United States using the P-38 Lightning fighter and the British Hamilcar glider. Later still, the Space Shuttle, the ultimate military glider, was transported in a similar fashion atop a Boeing 747 Jumbo Jet.

Appendix C:

Technical details

Airspeed AS51 Horsa Mk I and Mk II

Wingspan	88 feet
Length	68 feet
Height	20.3 feet
Crew	pilot, co-pilot
Weight (lb)	total 15,750, cargo 7,380
Loadings	28 troops, two jeeps or one jeep and one 6pdr gun (or equivalent)
Tow speed	160mph
Glide ratio	7.2
Towplanes	Albemarle, Wellington, Dakota, Lancaster, Stirling, Halifax



The Horsa glider first flew on 12 September 1941, just ten months after the start of the design process. Originally designed as a paratroop aircraft from which the men would jump and the glider return to base, experiments were also conducted into using it as a bomber with a single 12,000 lb armour-piercing bomb. In all, 3,655 Horsas were produced, 2,960 by furniture factories. It remained in service after the war, operating in support of British forces in Palestine.

General Aircraft Limited (GAL49) Hamilcar

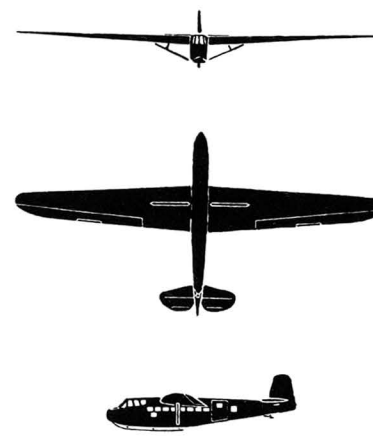
Wingspan	110 feet
Length	68.5 feet
Weight (lb)	total 36,000, cargo 17,500
Height	20.3 feet
Crew	pilot, co-pilot

Loadings	40 troops or one Tetrach Mk IV (or M22 Locust) tank or two scout cars (or equivalent)
Tow speed	150mph
Glide ratio	11.5
Towplanes:	Halifax, Lancaster, Stirling

First flown on 27 March 1942, the Hamilcar was the largest wooden aircraft built during the war, prompting the US Army's glider procurement officer to call it 'the biggest hunk of airplane I have ever seen put together'. It featured a nose-opening door that opened automatically. Tanks carried aboard started their engines during the approach and could be in action in just fifteen seconds after landing. In 1949, experiments were conducted in the US using a P-38 fighter mounted on top of the fuselage to act as a tow, as had been done with the German DFS 230 and a Me109 fighter. A total of 412 aircraft were produced.

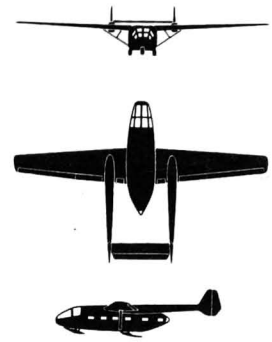
Deutsche Forschungsanstalt für Segelflug (DFS) 230

Wingspan	72 feet
Length	37.5 feet
Weight (lb)	total 4,600, cargo 2,800
Height	9 feet 4 inches
Crew	pilot
Loadings	9 troops or equivalent
Tow speed	120mph
Glide ratio	18
Armament	One passenger-operated machine gun
Towplanes	Ju52, Ju87, He111, He126, Bf110



First flown in 1937, the DFS 230 was a development of the German Institute for Glider Research's earlier 'flying observatory'. It saw widespread service in all theatres and was light enough to be towed by a range of improvised tow aircraft. Some experiments were carried out using Me109 fighters to launch them by carrying them as underslung loads but this was never used operationally. The fuselage was also the basis for the Focke-Achgelis Fa225 Tow-Copter – a rotary wing version of the glider using the blades of the Fa223 helicopter. Although one stood by for the rescue of Mussolini, there were few advantages to the design and it was never put into production. In all, 2,230 DFS 230 models and variants were produced.

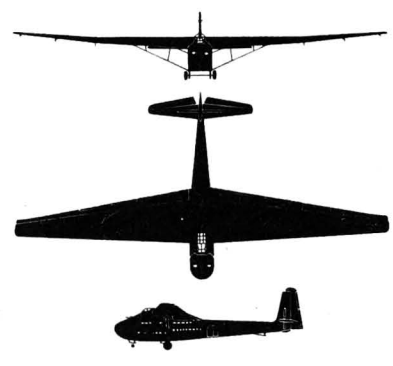
Gothaer Waggonfabric, AG (Gotha) Go242



Wingspan	79 feet
Length	52.5 feet
Weight (lb)	total 15,000, cargo 8000
Height	14 feet 5 inches
Crew	pilot, co-pilot
Loadings	23 troops or one Kubelwagen vehicle or equivalent
Tow speed	150mph (186mph max in dive)
Glide ratio	16
Armament	up to 8 MG15 machine guns could be mounted, but no more than 4 were used at any one time – one roof-mounted, one each side of the fuselage and another firing through the rear loading door.
Towplanes	Ju52, He111

To meet the demand for a larger capacity than the DFS 230, the Go242 was designed as an assault and transport aircraft and first flew for the Luftwaffe in mid-1941. Nine variants of the basic design were produced, mainly featuring changes to the landing gear, and some 1,530 were produced. Around 133 gliders were fitted with two radial engines and another 43 specially built and these flew as the Go244 transport aircraft.

Messerschmitt Me321 Gigant



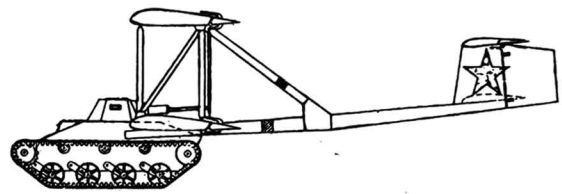
Wingspan	181 feet
Length	93 feet
Weight (lb)	total 70,000, cargo 44,000
Height	33 feet 4 inches
Crew	pilot, co-pilot, radio operator, loadmaster, two airgunners
Loadings	200 troops or a tank or an 88 mm gun and tractor
Tow speed	110mph
Towplanes	Ju90, He111z or three Bf110s

Until the arrival of the Boeing 747 Jumbo Jet, the Gigant was the largest aircraft ever flown. Designed for the invasion of Britain, the Me321 was one of two designs in preparation, the other being the Ju322 Mammut (Mammoth) with an even bigger wingspan of 203 feet. Trials of the Mammut were abandoned and the Gigant adopted after it first flew on 25 February 1941. It was used widely in

Russia later that year but production stopped in 1941 after 200 had been delivered. Problems in finding a powerful enough tow led to the development of the He111z 'Twin' – two He111 bombers joined at the wingtip to produce a five-engined aircraft. At times even this needed help from rocket packs attached to the glider to get it airborne. Later, a four-engined variant of the Me323 was produced and 198 went into service.

Kryliatyi Tank (KT) Antonov A-40

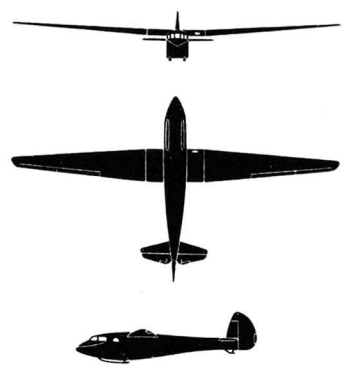
Wingspan	49.2 feet
Length	37.7 feet
Weight (lb)	total 18,000, cargo 13,200
Loadings	one T-60 tank
Tow speed	100mph
Towplanes	TB-3 Bomber



The 'winged tank' concept originated in 1939 and was based on the idea that a tank could be delivered to the battlefield by attaching biplane wings to it. Trials were successful but the 6 ton payload was too much for the towplanes and the project was abandoned. Similar British projects were attempted but these did not get beyond the production of a 1/3 scale model.

ANTONOV A-7 (also known as the Rot Front RF8)

Wingspan	62.2 feet
Length	37.7 feet
Weight (lb)	total 3,782, cargo 1,980
Crew	pilot
Loadings	8 troops
Glide ratio	18 (some sources suggest as high as 22.5)
Speed	186mph
Towplanes	Li-2, SB-3



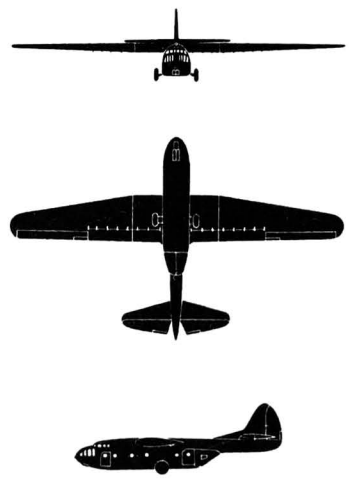
Designed in 1938, the A-7 was Russia's most widely used glider, with over 400 being built, mostly in 1942 for operations behind German lines.

Waco Cargo Glider 4 (CG-4 or 'Hadrian')

Wingspan	83.6 feet
Length	48 feet
Weight (lb)	total 7,500, cargo 4,060
Height	7.3 feet
Crew	pilot, co-pilot
Loadings	13 troops or one jeep with three troops or one 75 mm howitzer with a crew of three. Alternatively, six stretchers could be carried.
Tow speed	120mph
Glide ratio	8.2
Towplanes	C-47, C-46, C-54, A-25, B-25, P-38

The Waco glider was the most widely used aircraft in the Second World War, with nearly 14,000 being delivered by 1945.

Laister Kauffman Aircraft Corporation Cargo Glider 10 (CG-10 'Trojan Horse')



Wingspan	105 feet
Length	67 feet
Weight (lb)	total 23,000, cargo 10,850
Height	26.3 feet
Crew	pilot, co-pilot
Loadings	40 troops or one 2.5 ton truck or one M1 155 mm howitzer or one jeep and 75mm howitzer.
Tow speed	180mph
Glide ratio	8.1
Towplanes	C-47, C-46, C-54

Larger than the B-17 Flying Fortress, the CG-10 was intended for use in the invasion of Japan and an order was placed in 1942 for 1,000 aircraft. It grew out of a challenge by Colonel Fred Dent when he asked Jack Laister to produce copies of the Horsa under licence. Laister said he could do better and the result was the CG-10, first flown in early 1942. Its rear-loading ramp and low floor – just two feet off the ground – meant it could be loaded and unloaded very easily. Only ten were completed and ninety more were in production by the time Japan surrendered but these saw postwar service as medical facilities and airborne workshops. Every rear-loading military aircraft since has used the CG-10's design features.

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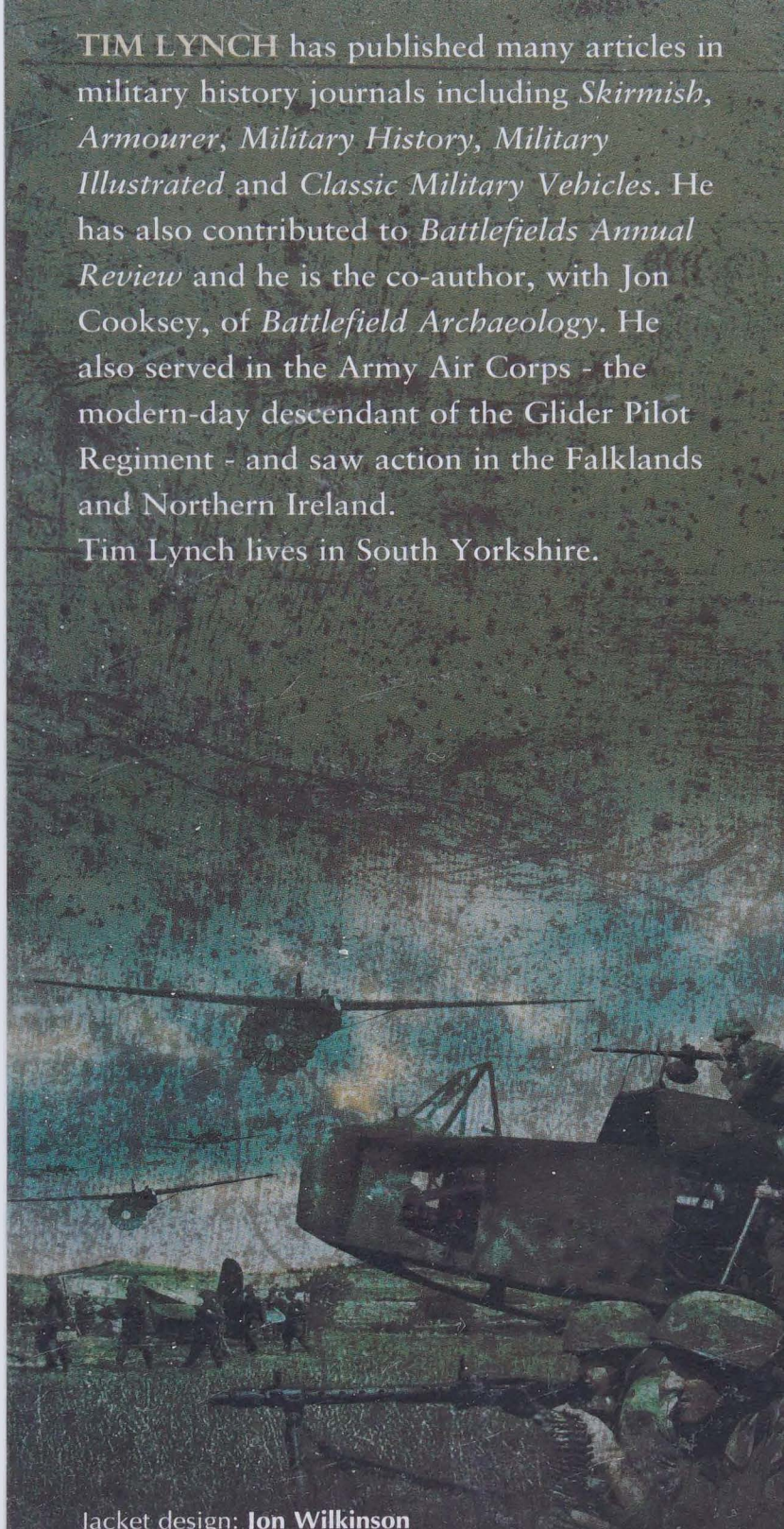
TIM LYNCH has published many articles in military history journals including *Skirmish*, *Armourer*, *Military History*, *Military Illustrated* and *Classic Military Vehicles*. He has also contributed to *Battlefields Annual Review* and he is the co-author, with Jon Cooksey, of *Battlefield Archaeology*. He also served in the Army Air Corps - the modern-day descendant of the Glider Pilot Regiment - and saw action in the Falklands and Northern Ireland.
Tim Lynch lives in South Yorkshire.



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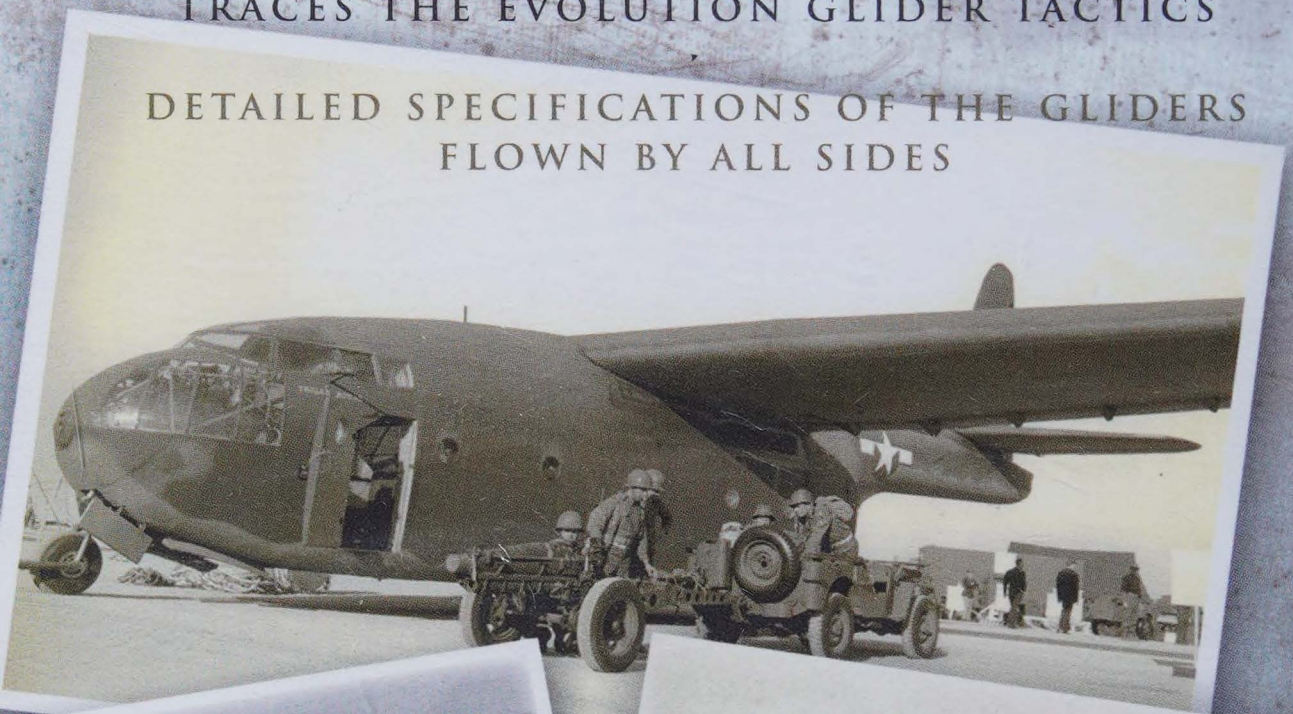

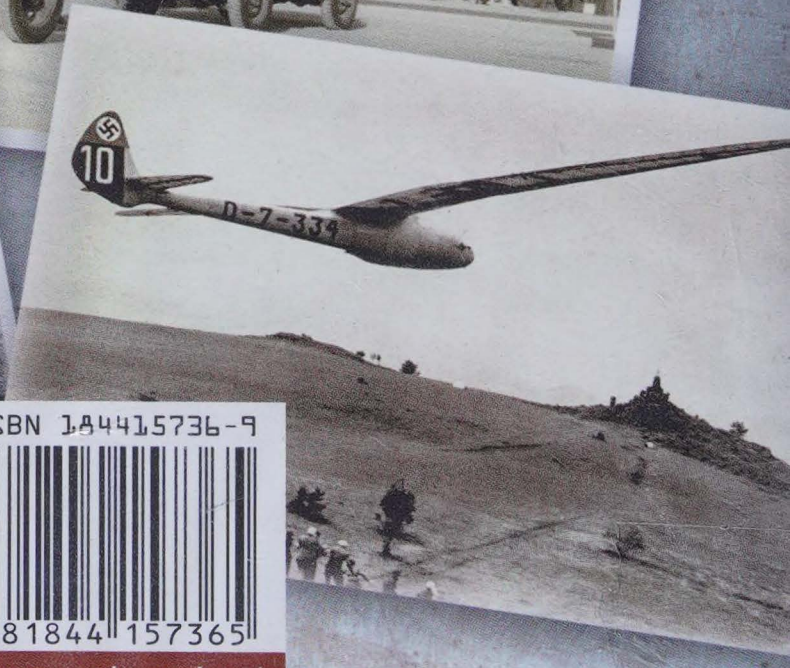

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